STIC Search Report
Biotech-Chem Library

STIC Database Tracking Number: 167302

TO: Marcela Cordero Garcia
Location: rem/3C35/3C18
Art Unit: 1654
Wednesday, October 12, 2005
Case Serial Number: 10/654304

From: Barb O'Bryen
Location: Biotech-Chem Library
Remsen 1a69
Phone: 571-272-2518

barbara.obryen@uspto.gov

Search Notes

STIC SEARCH RESULTS FEEDBACK FORM

Biotech-Chem Library

Questions about the scope or the results of the search? Contact ***the searcher or contact:***

Mary Hale, Information Branch Supervisor
Remsen Bldg. 01 D86
571-272-2507

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* ☐ *Example: 1610*
- *Relevant prior art **found**, search results used as follows:*
  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

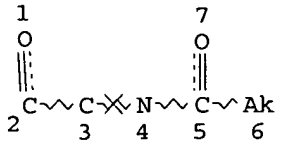
- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
  (journal articles, conference proceedings, new product announcements etc.)

- *Relevant prior art **not found:***
  - ☐ Results verified the lack of relevant prior art (helped determine patentability).
  - ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to STIC-Biotech-Chem Library Remsen Bldg.

```
=> d stat que l12; d his full
L7                STR
```



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NODE ATTRIBUTES:
NSPEC   IS RC     AT   3
NSPEC   IS RC     AT   4
CONNECT IS E1  RC AT   6
DEFAULT MLEVEL IS ATOM
GGCAT   IS HIC  AT   6
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS   7

STEREO ATTRIBUTES: NONE
L9       5170597 SEA FILE=REGISTRY ABB=ON  PS/FS
L12         4367 SEA FILE=REGISTRY SUB=L9 SSS FUL L7

100.0% PROCESSED  846249 ITERATIONS                          4367 ANSWERS
SEARCH TIME: 00.00.52



     (FILE 'HOME' ENTERED AT 14:20:36 ON 12 OCT 2005)

     FILE 'CAPLUS' ENTERED AT 14:20:50 ON 12 OCT 2005
                SET LINE 250
                SET DETAIL OFF
                E US2003-645304/AP,PRN 25
                E US2002-645304/AP,PRN 25
                E US2004-645304/AP,PRN 25
                SET LINE LOGIN
                SET DETAIL LOGIN
L1            271 SEA ABB=ON  STUPP S?/AU
L2              6 SEA ABB=ON  SPOERKE E?/AU
L3             70 SEA ABB=ON  ANTHONY S?/AU
L4              9 SEA ABB=ON  NIECE K?/AU
L5              2 SEA ABB=ON  L1 AND L2 AND L3 AND L4
                D SCAN
                D AB 1-2
                D SCAN
                SEL RN

     FILE 'REGISTRY' ENTERED AT 14:25:52 ON 12 OCT 2005
L6             26 SEA ABB=ON  (7440-32-6/BI OR 7440-70-2/BI OR 10103-46-5/BI OR
                1306-06-5/BI OR 14265-44-2/BI OR 25104-18-1/BI OR 551942-46-2/B
                I OR 553655-46-2/BI OR 553655-52-0/BI OR 586415-27-2/BI OR
                666173-90-6/BI OR 666173-91-7/BI OR 667426-97-3/BI OR 667426-98
                -4/BI OR 667479-53-0/BI OR 746619-98-7/BI OR 746619-99-8/BI OR
                746620-01-9/BI OR 746620-02-0/BI OR 746620-03-1/BI OR 746620-04
                -2/BI OR 746620-05-3/BI OR 746620-06-4/BI OR 7757-93-9/BI OR
```

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                7758-23-8/BI OR 7758-87-4/BI)
                D SCAN
L7              STR
L8           10 SEA SSS SAM L7
                E PS/FS
L9      5170597 SEA ABB=ON  PS/FS
L10          17 SEA ABB=ON  L9 AND L6
L11           9 SEA SUB=L9 SSS SAM L7
L12        4367 SEA SUB=L9 SSS FUL L7
                SAVE TEMP L12 GAR105FULL/A

     FILE 'CAPLUS' ENTERED AT 14:32:42 ON 12 OCT 2005
L13         2106 SEA ABB=ON  L12
L14        11356 SEA ABB=ON  AMPHIPHIL?/OBI
L15           46 SEA ABB=ON  L13 AND L14
L16         1749 SEA ABB=ON  ((ALKYL OR HYDROCARBON#)(2A)(TAIL? OR END# OR
                ENDPIECE#))/BI
L17          111 SEA ABB=ON  L14 AND L16
L18       260284 SEA ABB=ON  PEPTIDE#/OBI
L19          635 SEA ABB=ON  L18(L)L14
L20           16 SEA ABB=ON  L19 AND L16
                D SCAN TI
L21           37 SEA ABB=ON  (L1 OR L2 OR L3 OR L4) AND (L19 OR L13)
L22            7 SEA ABB=ON  (L2 OR L4) AND (L1 OR L3) AND (L19 OR L13)
L23            6 SEA ABB=ON  L21 AND L20
L24            2 SEA ABB=ON  L23 AND L22
                D QUE L20
L25            6 SEA ABB=ON  (L13 OR L19) AND L16 AND (L1 OR L2 OR L3 OR L4)
L26           14 SEA ABB=ON  L13 AND (L1 OR L2 OR L3 OR L4)
L27           10 SEA ABB=ON  L26 NOT (L5 OR L22 OR L25)
                D QUE L20
L28       224166 SEA ABB=ON  CHARGE#/OBI
L29        19004 SEA ABB=ON  CONICAL?/BI
L30            2 SEA ABB=ON  L15 AND (L28 OR L29)
                D SCAN TI
L31            2 SEA ABB=ON  L30 AND (L1 OR L2 OR L3 OR L4)
L32       651453 SEA ABB=ON  SOLUTION#/OBI
L33       360882 SEA ABB=ON  SOLNS/OBI
L34            6 SEA ABB=ON  L15 AND (L32 OR L33)
                D SCAN TI
L35       261065 SEA ABB=ON  IONIC?/BI
L36       657718 SEA ABB=ON  CHARGE#/BI
L37            5 SEA ABB=ON  L13 AND (L35 OR L36) AND L14
                D SCAN TI
L38        93047 SEA ABB=ON  COVALENT?/BI
L39            9 SEA ABB=ON  (L13 OR (L16 AND L18)) AND L14 AND L38
                D SCAN TI
L40            8 SEA ABB=ON  L39 NOT (NON COVALENT?)/BI

     FILE 'STNGUIDE' ENTERED AT 14:47:48 ON 12 OCT 2005

     FILE 'JICST-EPLUS, PASCAL, BIOTECHNO, ESBIOBASE, BIOSIS, CONFSCI,
     LIFESCI, BIOTECHDS, CEABA-VTB, WPIDS' ENTERED AT 14:50:55 ON 12 OCT 2005
L41          286 SEA ABB=ON  STUPP S?/AU
L42            8 SEA ABB=ON  SPOERKE E?/AU
L43          190 SEA ABB=ON  ANTHONY S?/AU
L44           15 SEA ABB=ON  NIECE K?/AU
L45        25688 SEA ABB=ON  AMPHIPHIL?
L46      1354454 SEA ABB=ON  PEPTIDE# OR POLYPEPTIDE# OR OLIGOPEPTIDE#
L47         1515 SEA ABB=ON  ((ALKYL OR HYDROCARBON#)(2A)(TAIL? OR END# OR
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                ENDPIECE#))
L48       904701 SEA ABB=ON  CHARGE#
L49       947789 SEA ABB=ON  IONIC? OR CATION? OR ANION?
L50       133605 SEA ABB=ON  CONICAL?
L51       138687 SEA ABB=ON  COVALENT?
L52      2134643 SEA ABB=ON  SOLUTION# OR SOLN#
L53            2 SEA ABB=ON  L41 AND L42 AND L43 AND L44
L54           20 SEA ABB=ON  (L42 OR L44) AND (L41 OR L43)
L55           14 SEA ABB=ON  (L42 OR L44) AND (L41 OR L43) AND L45
L56         1648 SEA ABB=ON  L45(3A) L46
L57           10 SEA ABB=ON  L56 AND L47
L58          713 SEA ABB=ON  L56 AND (L48 OR L49 OR L50 OR L51 OR L52)
L59          449 SEA ABB=ON  L56 AND (L48 OR L49)
L60            2 SEA ABB=ON  L56 AND L50
L61           65 SEA ABB=ON  L56 AND L51
L62          313 SEA ABB=ON  L56 AND L52
L63           27 SEA ABB=ON  L56 AND L51 AND ((L48 OR L49) OR L52)
L64           25 SEA ABB=ON  L63 NOT (L53 OR L55 OR L57 OR L60)
L65           17 DUP REM L64 (8 DUPLICATES REMOVED)
                     ANSWERS '1-4' FROM FILE PASCAL
                     ANSWER '5' FROM FILE ESBIOBASE
                     ANSWERS '6-9' FROM FILE BIOSIS
                     ANSWERS '10-11' FROM FILE BIOTECHDS
                     ANSWERS '12-17' FROM FILE WPIDS
                D QUE
                D QUE L63

     FILE 'WPIDS' ENTERED AT 14:57:51 ON 12 OCT 2005

     FILE 'DISSABS' ENTERED AT 14:58:05 ON 12 OCT 2005
L66           29 SEA ABB=ON  STUPP S?/AU
L67            1 SEA ABB=ON  SPOERKE E?/AU
L68           10 SEA ABB=ON  ANTHONY S?/AU
L69            0 SEA ABB=ON  NIECE K?/AU
                D SCAN L67
L70          879 SEA ABB=ON  AMPHIPHIL?
L71            0 SEA ABB=ON  L67 AND L70
                D AB L67
L72            7 SEA ABB=ON  (L66 OR L68) AND L70
L73        13046 SEA ABB=ON  ENGINEERING, BIOMEDICAL/CC
L74            5 SEA ABB=ON  (L66 OR L68) AND L73
L75            2 SEA ABB=ON  L72 AND L74
                D SCAN
                D KWIC
                D KWIC 2
                D QUE L67
                D QUE L69
                E ANTHONY, SHAWN/AU
                E ANTHONY SHAWN/AU
L76        21545 SEA ABB=ON  PEPTIDE# OR POLYPEPTIDE# OR OLIGOPEPTIDE#
L77        29109 SEA ABB=ON  CHARGE#
L78        27300 SEA ABB=ON  IONIC? OR CATION? OR ANION?
L79          893 SEA ABB=ON  CONICAL?
L80         5832 SEA ABB=ON  COVALENT?
L81          122 SEA ABB=ON  ((ALKYL OR HYDROCARBON#)(2A)(TAIL? OR END# OR
                ENDPIECE#))
L82          157 SEA ABB=ON  L70 AND L76
L83           68 SEA ABB=ON  L82 AND (L77 OR L78 OR L79 OR L80 OR L81)
L84           22 SEA ABB=ON  L82 AND L77
L85           34 SEA ABB=ON  L82 AND L78
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L86           0 SEA ABB=ON  L82 AND L79
L87          20 SEA ABB=ON  L82 AND L80
L88           5 SEA ABB=ON  L82 AND L81
L89          12 SEA ABB=ON  L82 AND ((L77 AND L78) OR (L78 AND L80) OR (L77
                 AND L80))
L90          17 SEA ABB=ON  L88 OR L89
L91           4 SEA ABB=ON  L90 AND L73
L92           9 SEA ABB=ON  L83 AND L73
L93           5 SEA ABB=ON  L92 NOT L91
                 D KWIC 1-5
                 D QUE
L94          70 SEA ABB=ON  L76(8A)L70
                 D QUE L92
L95           6 SEA ABB=ON  L94 AND (L77 OR L78 OR L79 OR L80 OR L81) AND L73


     FILE 'MEDLINE' ENTERED AT 15:12:12 ON 12 OCT 2005
L96          41 SEA ABB=ON  STUPP S?/AU
L97           2 SEA ABB=ON  SPOERKE E?/AU
L98          57 SEA ABB=ON  ANTHONY S?/AU
L99           2 SEA ABB=ON  NIECE K?/AU
L100          4 SEA ABB=ON  (L96 OR L98) AND (L97 OR L99)
                 D TRIAL 1-4
L101    1107565 SEA ABB=ON  PEPTIDES+NT/CT
L102       4713 SEA ABB=ON  AMPHIPHIL?
L103        953 SEA ABB=ON  L101 AND L102
L104        688 SEA ABB=ON  L101/MAJ AND L102
L105        221 SEA ABB=ON  ((ALKYL OR HYDROCARBON#)(2A)(TAIL? OR END# OR
                 ENDPIECE#))
L106      17328 SEA ABB=ON  ELECTROSTAT?
L107      80428 SEA ABB=ON  CHARGE#
L108      18733 SEA ABB=ON  CONICAL? OR CONE#
L109      36331 SEA ABB=ON  COVALENT?
L110        161 SEA ABB=ON  L104 AND (L105 OR L106 OR L107 OR L108 OR L109)
L111          4 SEA ABB=ON  L104 AND L105
L112         47 SEA ABB=ON  L104 AND L106
L113        128 SEA ABB=ON  L104 AND L107
L114          1 SEA ABB=ON  L104 AND L108
L115         18 SEA ABB=ON  L104 AND L109
L116         34 SEA ABB=ON  (L115 OR L112) AND L113
L117          1 SEA ABB=ON  L104 AND L109 AND L106 AND L107
                 D QUE L113
L118          3 SEA ABB=ON  L104 AND L115 AND (L112 OR L113)
L119      70291 SEA ABB=ON  ASSEMB?
L120         11 SEA ABB=ON  (L112 OR L113 OR L115) AND L119
                 D TRIAL 1-5

     FILE 'EMBASE' ENTERED AT 15:21:13 ON 12 OCT 2005
L121         37 SEA ABB=ON  STUPP S?/AU
L122          2 SEA ABB=ON  SPOERKE E?/AU
L123         39 SEA ABB=ON  ANTHONY S?/AU
L124          2 SEA ABB=ON  NIECE K?/AU
L125          4 SEA ABB=ON  (L122 OR L124) AND (L121 OR L123)
                 D TRIAL 1-4
L126      23838 SEA ABB=ON  PEPTIDE+NT/CT
L127       1672 SEA ABB=ON  AMPHOPHILE/CT
L128         33 SEA ABB=ON  L126/MAJ AND L127/MAJ
L129      35201 SEA ABB=ON  COVALENT?
L130      14998 SEA ABB=ON  ELECTROSTAT?
L131      69361 SEA ABB=ON  CHARGE#
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L132      16739 SEA ABB=ON  CONICAL? OR CONE#
L133        232 SEA ABB=ON  ((ALKYL OR HYDROCARBON#)(2A)(TAIL? OR END# OR
                ENDPIECE#))
L134          7 SEA ABB=ON  L128 AND (L129 OR L130 OR L131 OR L132 OR L133)

     FILE 'STNGUIDE' ENTERED AT 15:23:25 ON 12 OCT 2005

     FILE 'REGISTRY' ENTERED AT 15:25:10 ON 12 OCT 2005
               D STAT QUE L12

     FILE 'CAPLUS' ENTERED AT 15:25:11 ON 12 OCT 2005
               D QUE NOS L5
               D QUE NOS L22
               D QUE NOS L25
               D QUE NOS L26
L135         21 SEA ABB=ON  L5 OR L22 OR L25 OR L26

     FILE 'JICST-EPLUS, PASCAL, BIOTECHNO, ESBIOBASE, BIOSIS, CONFSCI,
     LIFESCI, BIOTECHDS, CEABA-VTB, WPIDS' ENTERED AT 15:25:13 ON 12 OCT 2005
               D QUE L53
               D QUE L55
L136         14 SEA ABB=ON  L53 OR L55

     FILE 'DISSABS' ENTERED AT 15:25:20 ON 12 OCT 2005
               D QUE L67
               D QUE L75
               D QUE L69
L137          3 SEA ABB=ON  L67 OR L75

     FILE 'EMBASE' ENTERED AT 15:25:23 ON 12 OCT 2005
               D QUE L125

     FILE 'MEDLINE' ENTERED AT 15:25:23 ON 12 OCT 2005
               D QUE L100

     FILE 'MEDLINE, CAPLUS, PASCAL, ESBIOBASE, BIOSIS, LIFESCI, WPIDS,
     DISSABS, EMBASE' ENTERED AT 15:26:00 ON 12 OCT 2005
L138         31 DUP REM L100 L135 L136 L137 L125 (15 DUPLICATES REMOVED)
                    ANSWERS '1-4' FROM FILE MEDLINE
                    ANSWERS '5-23' FROM FILE CAPLUS
                    ANSWER '24' FROM FILE PASCAL
                    ANSWERS '25-28' FROM FILE BIOSIS
                    ANSWERS '29-31' FROM FILE DISSABS
               D IALL 1-4
               D IBIB ED ABS HITIND HITSTR 5-23
               D IALL 24-31

     FILE 'STNGUIDE' ENTERED AT 15:26:58 ON 12 OCT 2005

     FILE 'CAPLUS' ENTERED AT 15:29:04 ON 12 OCT 2005
               D QUE NOS L20
               D QUE NOS L30
               D QUE NOS L34
               D QUE NOS L37
               D QUE NOS L40
L139         17 SEA ABB=ON  (L20 OR L30 OR L34 OR L37 OR L40) NOT L135

     FILE 'JICST-EPLUS, PASCAL, BIOTECHNO, ESBIOBASE, BIOSIS, CONFSCI,
     LIFESCI, BIOTECHDS, CEABA-VTB, WPIDS' ENTERED AT 15:29:08 ON 12 OCT 2005
               D QUE L57
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                D QUE L60
                D QUE L63

     FILE 'DISSABS' ENTERED AT 15:29:15 ON 12 OCT 2005
                D QUE L86
                D QUE L95
                D QUE L91
L140          5 SEA ABB=ON  (L95 OR L91) NOT L137

     FILE 'EMBASE' ENTERED AT 15:29:17 ON 12 OCT 2005
                D QUE L134
L141          6 SEA ABB=ON  L134 NOT L125

     FILE 'MEDLINE' ENTERED AT 15:29:18 ON 12 OCT 2005
                D QUE L111
                D QUE NOS L114
                D QUE L118
                D QUE L120
L142         17 SEA ABB=ON  (L111 OR L114 OR L118 OR L120) NOT L100

     FILE 'STNGUIDE' ENTERED AT 15:29:40 ON 12 OCT 2005

     FILE 'JICST-EPLUS, PASCAL, BIOTECHNO, ESBIOBASE, BIOSIS, CONFSCI,
     LIFESCI, BIOTECHDS, CEABA-VTB, WPIDS' ENTERED AT 15:30:10 ON 12 OCT 2005
L143          9 SEA ABB=ON  L57 NOT L136
L144          1 SEA ABB=ON  L60 NOT L136
L145         25 SEA ABB=ON  L63 NOT L136

     FILE 'STNGUIDE' ENTERED AT 15:31:21 ON 12 OCT 2005

     FILE 'MEDLINE, CAPLUS, JICST-EPLUS, PASCAL, BIOTECHNO, ESBIOBASE, BIOSIS,
     CEABA-VTB, WPIDS, LIFESCI, BIOTECHDS, DISSABS, EMBASE' ENTERED AT
     15:32:58 ON 12 OCT 2005
L146         57 DUP REM L142 L139 L143 L144 L145 L140 L141 (23 DUPLICATES REMOV
                       ANSWERS '1-17' FROM FILE MEDLINE
                       ANSWERS '18-33' FROM FILE CAPLUS
                       ANSWER '34' FROM FILE JICST-EPLUS
                       ANSWERS '35-38' FROM FILE PASCAL
                       ANSWERS '39-40' FROM FILE BIOSIS
                       ANSWER '41' FROM FILE CEABA-VTB
                       ANSWERS '42-50' FROM FILE WPIDS
                       ANSWERS '51-55' FROM FILE DISSABS
                       ANSWERS '56-57' FROM FILE EMBASE
                D IALL 1-17
                D IBIB ED ABS HITIND HITSTR 18-33
                D IALL 34-57

     FILE 'HOME' ENTERED AT 15:33:50 ON 12 OCT 2005
                D STAT QUE L12


     FILE HOME

     FILE CAPLUS

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     26, 1996), unless otherwise indicated in the original publications.
     The CA Lexicon is the copyrighted intellectual property of the
```

FILE COVERS 1907 - 12 Oct 2005 VOL 143 ISS 16
FILE LAST UPDATED: 11 Oct 2005 (20051011/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE REGISTRY
Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 11 OCT 2005 HIGHEST RN 865062-68-6
DICTIONARY FILE UPDATES: 11 OCT 2005 HIGHEST RN 865062-68-6

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

****
* *
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
* *
****

Structure search iteration limits have been increased. See HELP SLIMITS for details.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

http://www.cas.org/ONLINE/UG/regprops.html

FILE STNGUIDE
FILE CONTAINS CURRENT INFORMATION.
LAST RELOADED: Oct 7, 2005 (20051007/UP).

FILE JICST-EPLUS
FILE COVERS 1985 TO 12 OCT 2005 (20051012/ED)

THE JICST-EPLUS FILE HAS BEEN RELOADED TO REFLECT THE 1999 CONTROLLED TERM (/CT) THESAURUS RELOAD.

FILE PASCAL
FILE LAST UPDATED: 10 OCT 2005 <20051010/UP>
FILE COVERS 1977 TO DATE.

>>> SIMULTANEOUS LEFT AND RIGHT TRUNCATION IS AVAILABLE
IN THE BASIC INDEX (/BI) FIELD <<<

FILE BIOTECHNO
FILE LAST UPDATED: 7 JAN 2004 <20040107/UP>
FILE COVERS 1980 TO 2003.

>>> BIOTECHNO IS NO LONGER BEING UPDATED AS OF 2004 <<<

>>> SIMULTANEOUS LEFT AND RIGHT TRUNCATION AVAILABLE IN
/CT AND BASIC INDEX <<<

FILE ESBIOBASE
FILE LAST UPDATED: 11 OCT 2005 <20051011/UP>
FILE COVERS 1994 TO DATE.

>>> SIMULTANEOUS LEFT AND RIGHT TRUNCATION AVAILABLE IN
/CC, /ORGN, AND /ST <<<

FILE BIOSIS
FILE COVERS 1969 TO DATE.
CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT
FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 5 October 2005 (20051005/ED)

FILE RELOADED: 19 October 2003.

FILE CONFSCI
FILE COVERS 1973 TO 25 May 2005 (20050525/ED)

FILE LIFESCI
FILE COVERS 1978 TO 19 Sep 2005 (20050919/ED)

FILE BIOTECHDS
FILE LAST UPDATED: 12 OCT 2005 <20051012/UP>

>>> USE OF THIS FILE IS LIMITED TO BIOTECH SUBSCRIBERS <<<

>>> NEW CLASSIFICATION SYSTEM FROM 2002 ONWARDS - SEE HELP CLA <<<

>>> NEW DISPLAY FIELDS LS AND LS2 (LEGAL STATUS DATA FROM
THE INPADOC DATABASE) AVAILABLE - SEE NEWS <<<

FILE CEABA-VTB
FILE LAST UPDATED: 29 SEP 2005 <20050929/UP>
FILE COVERS 1966 TO DATE

FILE WPIDS
FILE LAST UPDATED: 11 OCT 2005 <20051011/UP>
MOST RECENT DERWENT UPDATE: 200565 <200565/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

>>> FOR A COPY OF THE DERWENT WORLD PATENTS INDEX STN USER GUIDE,
PLEASE VISIT:
http://www.stn-international.de/training_center/patents/stn_guide.pdf <<<

>>> FOR DETAILS OF THE PATENTS COVERED IN CURRENT UPDATES, SEE
http://thomsonderwent.com/coverage/latestupdates/ <<<

>>> FOR INFORMATION ON ALL DERWENT WORLD PATENTS INDEX USER GUIDES, PLEASE VISIT:
http://thomsonderwent.com/support/userguides/ <<<

>>> NEW! FAST-ALERTING ACCESS TO NEWLY-PUBLISHED PATENT DOCUMENTATION NOW AVAILABLE IN DERWENT WORLD PATENTS INDEX FIRST VIEW - FILE WPIFV.
FOR FURTHER DETAILS: http://www.thomsonderwent.com/dwpifv <<<

>>> THE CPI AND EPI MANUAL CODES HAVE BEEN REVISED FROM UPDATE 200501.
PLEASE CHECK:
http://thomsonderwent.com/support/dwpiref/reftools/classification/code-rev FOR DETAILS. <<<

FILE DISSABS
FILE COVERS 1861 TO 29 SEP 2005 (20050929/ED)

FILE MEDLINE
FILE LAST UPDATED: 11 OCT 2005 (20051011/UP). FILE COVERS 1950 TO DATE.

On December 19, 2004, the 2005 MeSH terms were loaded.

The MEDLINE reload for 2005 is now available. For details enter HELP RLOAD at an arrow promt (=>). See also:

http://www.nlm.nih.gov/mesh/
http://www.nlm.nih.gov/pubs/techbull/nd04/nd04_mesh.html

OLDMEDLINE now back to 1950.

MEDLINE thesauri in the /CN, /CT, and /MN fields incorporate the MeSH 2005 vocabulary.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE EMBASE
FILE COVERS 1974 TO 6 Oct 2005 (20051006/ED)

EMBASE has been reloaded. Enter HELP RLOAD for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=>

```
=> fil reg; d stat que l12
FILE 'REGISTRY' ENTERED AT 15:25:10 ON 12 OCT 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
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STRUCTURE FILE UPDATES:   11 OCT 2005  HIGHEST RN 865062-68-6
DICTIONARY FILE UPDATES:  11 OCT 2005  HIGHEST RN 865062-68-6

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

**********************************************************************
*                                                                    *
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added,   *
* effective March 20, 2005.  A new display format, IDERL, is now    *
* available and contains the CA role and document type information. *
*                                                                    *
**********************************************************************

Structure search iteration limits have been increased. See HELP SLIMITS
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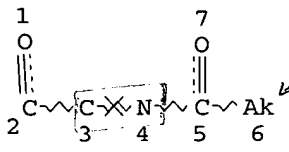
REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document.  For information
on property searching in REGISTRY, refer to:

http://www.cas.org/ONLINE/UG/regprops.html

L7                  STR
```



unsubstituted alkyl containing >6 carbons

[ ] = ring or chain bond & nodes

(structure for peptide with alkyl "tail")

```
NODE ATTRIBUTES:
NSPEC    IS RC     AT   3
NSPEC    IS RC     AT   4
CONNECT  IS E1  RC AT   6
DEFAULT MLEVEL IS ATOM
GGCAT    IS HIC  AT   6
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS   7

STEREO ATTRIBUTES: NONE
```

```
L9       5170597 SEA FILE=REGISTRY ABB=ON  PS/FS
L12         4367 SEA FILE=REGISTRY SUB=L9 SSS FUL L7

100.0% PROCESSED  846249 ITERATIONS                    4367 ANSWERS
SEARCH TIME: 00.00.52


=> fil capl; d que nos l5; d que nos l22; d que nos l25; d que nos l26

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inventor search

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FILE COVERS 1907 - 12 Oct 2005  VOL 143 ISS 16
FILE LAST UPDATED: 11 Oct 2005  (20051011/ED)

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  This file contains CAS Registry Numbers for easy and accurate
  substance identification.
'OBI' IS DEFAULT SEARCH FIELD FOR 'CAPLUS' FILE


L1           271 SEA FILE=CAPLUS ABB=ON  STUPP S?/AU
L2             6 SEA FILE=CAPLUS ABB=ON  SPOERKE E?/AU
L3            70 SEA FILE=CAPLUS ABB=ON  ANTHONY S?/AU
L4             9 SEA FILE=CAPLUS ABB=ON  NIECE K?/AU
L5             2 SEA FILE=CAPLUS ABB=ON  L1 AND L2 AND L3 AND L4



L1           271 SEA FILE=CAPLUS ABB=ON  STUPP S?/AU
L2             6 SEA FILE=CAPLUS ABB=ON  SPOERKE E?/AU
L3            70 SEA FILE=CAPLUS ABB=ON  ANTHONY S?/AU
L4             9 SEA FILE=CAPLUS ABB=ON  NIECE K?/AU
L7               STR
L9       5170597 SEA FILE=REGISTRY ABB=ON  PS/FS
L12         4367 SEA FILE=REGISTRY SUB=L9 SSS FUL L7
L13         2106 SEA FILE=CAPLUS ABB=ON  L12
L14        11356 SEA FILE=CAPLUS ABB=ON  AMPHIPHIL?/OBI
L18       260284 SEA FILE=CAPLUS ABB=ON  PEPTIDE#/OBI
L19          635 SEA FILE=CAPLUS ABB=ON  L18(L)L14
L22            7 SEA FILE=CAPLUS ABB=ON  (L2 OR L4) AND (L1 OR L3) AND (L19 OR
                 L13)
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L1          271 SEA FILE=CAPLUS ABB=ON  STUPP S?/AU
L2            6 SEA FILE=CAPLUS ABB=ON  SPOERKE E?/AU
L3           70 SEA FILE=CAPLUS ABB=ON  ANTHONY S?/AU
L4            9 SEA FILE=CAPLUS ABB=ON  NIECE K?/AU
L7              STR
L9      5170597 SEA FILE=REGISTRY ABB=ON  PS/FS
L12        4367 SEA FILE=REGISTRY SUB=L9 SSS FUL L7
L13        2106 SEA FILE=CAPLUS ABB=ON  L12
L14       11356 SEA FILE=CAPLUS ABB=ON  AMPHIPHIL?/OBI
L16        1749 SEA FILE=CAPLUS ABB=ON  ((ALKYL OR HYDROCARBON#)(2A)(TAIL? OR
                END# OR ENDPIECE#))/BI
L18      260284 SEA FILE=CAPLUS ABB=ON  PEPTIDE#/OBI
L19         635 SEA FILE=CAPLUS ABB=ON  L18(L)L14
L25           6 SEA FILE=CAPLUS ABB=ON  (L13 OR L19) AND L16 AND (L1 OR L2 OR
                L3 OR L4)
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L1          271 SEA FILE=CAPLUS ABB=ON  STUPP S?/AU
L2            6 SEA FILE=CAPLUS ABB=ON  SPOERKE E?/AU
L3           70 SEA FILE=CAPLUS ABB=ON  ANTHONY S?/AU
L4            9 SEA FILE=CAPLUS ABB=ON  NIECE K?/AU
L7              STR
L9      5170597 SEA FILE=REGISTRY ABB=ON  PS/FS
L12        4367 SEA FILE=REGISTRY SUB=L9 SSS FUL L7
L13        2106 SEA FILE=CAPLUS ABB=ON  L12
L26          14 SEA FILE=CAPLUS ABB=ON  L13 AND (L1 OR L2 OR L3 OR L4)
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```
=> s l5 or l22 or l25 or l26

L135        21 L5 OR L22 OR L25 OR L26

=> fil JICST-EPLUS, PASCAL, BIOTECHNO, ESBIOBASE, BIOSIS, CONFSCI, LIFESCI,
BIOTECHDS, CEABA-VTB, WPIDS

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=> d que l53; d que l55

L41 286 SEA STUPP S?/AU
L42 8 SEA SPOERKE E?/AU
L43 190 SEA ANTHONY S?/AU
L44 15 SEA NIECE K?/AU
L53 2 SEA L41 AND L42 AND L43 AND L44

L41 286 SEA STUPP S?/AU
L42 8 SEA SPOERKE E?/AU
L43 190 SEA ANTHONY S?/AU
L44 15 SEA NIECE K?/AU
L45 25688 SEA AMPHIPHIL?
L55 14 SEA (L42 OR L44) AND (L41 OR L43) AND L45

=> s l53 or l55

L136 14 L53 OR L55

=> fil dissabs; d que l67; d que l75; d que l69

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L67 1 SEA FILE=DISSABS ABB=ON SPOERKE E?/AU

L66 29 SEA FILE=DISSABS ABB=ON STUPP S?/AU
L68 10 SEA FILE=DISSABS ABB=ON ANTHONY S?/AU
L70 879 SEA FILE=DISSABS ABB=ON AMPHIPHIL?
L72 7 SEA FILE=DISSABS ABB=ON (L66 OR L68) AND L70
L73 13046 SEA FILE=DISSABS ABB=ON ENGINEERING, BIOMEDICAL/CC
L74 5 SEA FILE=DISSABS ABB=ON (L66 OR L68) AND L73
L75 2 SEA FILE=DISSABS ABB=ON L72 AND L74

```
L69             0 SEA FILE=DISSABS ABB=ON  NIECE K?/AU

=> s l67 or l75

L137            3 L67 OR L75

=> fil embase; d que l125

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 FILE COVERS 1974 TO 6 Oct 2005 (20051006/ED)

 EMBASE has been reloaded. Enter HELP RLOAD for details.

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L121           37 SEA FILE=EMBASE ABB=ON  STUPP S?/AU
L122            2 SEA FILE=EMBASE ABB=ON  SPOERKE E?/AU
L123           39 SEA FILE=EMBASE ABB=ON  ANTHONY S?/AU
L124            2 SEA FILE=EMBASE ABB=ON  NIECE K?/AU
L125            4 SEA FILE=EMBASE ABB=ON  (L122 OR L124) AND (L121 OR L123)


=> fil medl; d que l100

FILE 'MEDLINE' ENTERED AT 15:25:23 ON 12 OCT 2005

 FILE LAST UPDATED: 11 OCT 2005 (20051011/UP). FILE COVERS 1950 TO DATE.

 On December 19, 2004, the 2005 MeSH terms were loaded.

 The MEDLINE reload for 2005 is now available. For details enter HELP
 RLOAD at an arrow promt (=>). See also:

    http://www.nlm.nih.gov/mesh/
    http://www.nlm.nih.gov/pubs/techbull/nd04/nd04_mesh.html

 OLDMEDLINE now back to 1950.

 MEDLINE thesauri in the /CN, /CT, and /MN fields incorporate the
 MeSH 2005 vocabulary.

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.


L96            41 SEA FILE=MEDLINE ABB=ON  STUPP S?/AU
L97             2 SEA FILE=MEDLINE ABB=ON  SPOERKE E?/AU
L98            57 SEA FILE=MEDLINE ABB=ON  ANTHONY S?/AU
L99             2 SEA FILE=MEDLINE ABB=ON  NIECE K?/AU
L100            4 SEA FILE=MEDLINE ABB=ON  (L96 OR L98) AND (L97 OR L99)
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=> dup rem l100,l135,l136,l137,l125
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PROCESSING COMPLETED FOR L100
PROCESSING COMPLETED FOR L135
PROCESSING COMPLETED FOR L136
PROCESSING COMPLETED FOR L137
PROCESSING COMPLETED FOR L125
L138          31 DUP REM L100 L135 L136 L137 L125 (15 DUPLICATES REMOVED)
                 ANSWERS '1-4' FROM FILE MEDLINE
                 ANSWERS '5-23' FROM FILE CAPLUS
                 ANSWER '24' FROM FILE PASCAL
                 ANSWERS '25-28' FROM FILE BIOSIS
                 ANSWERS '29-31' FROM FILE DISSABS

=> d iall 1-4; d ibib ed abs hitind hitstr 5-23; d iall 24-31

L138 ANSWER 1 OF 31     MEDLINE on STN                    DUPLICATE 1
ACCESSION NUMBER:   2005160050     MEDLINE
DOCUMENT NUMBER:    PubMed ID: 15792538
TITLE:              Synthesis of a poly(L-lysine)-calcium phosphate hybrid on
                    titanium surfaces for enhanced bioactivity.
AUTHOR:             Spoerke Erik D; Stupp Samuel I
CORPORATE SOURCE:   Department of Materials Science and Engineering,
                    Northwestern University, Evanston, 2220 Campus Dr.,
                    Illinois 60208, USA.. edspoer@sandia.gov
SOURCE:             Biomaterials, (2005 Sep) 26 (25) 5120-9.
                    Journal code: 8100316. ISSN: 0142-9612.
PUB. COUNTRY:       England: United Kingdom
DOCUMENT TYPE:      Journal; Article; (JOURNAL ARTICLE)
LANGUAGE:           English
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FILE SEGMENT: Priority Journals
ENTRY MONTH: 200509
ENTRY DATE: Entered STN: 20050329
Last Updated on STN: 20050907
Entered Medline: 20050906

ABSTRACT:
Titanium has been a successful implant material owing to its excellent strength to weight ratio, toughness, and bioinert oxide surface. Significant progress has been made on the improvement of titanium's bioactivity by coating its oxide surface with calcium phosphates and bioactive molecules. Here, we report on the coating of titanium with a poly(L-lysine)-calcium phosphate hybrid material with a nanoscale texture. This hybrid coating was grown by first nucleating seed crystals of calcium phosphate, directly on the Ti surface and then exposing this surface to solutions containing Ca(2+), PO(4)(3-), and poly(L-lysine). The resultant hybrid coating was characterized by electron microscopy, X-ray diffraction, Fourier transform infrared spectroscopy, thermogravimetric analysis, X-ray photoelectron spectroscopy, and elemental analysis. This material contained 14% by weight poly(L-lysine), and this organic component decreased greatly the dimensions of the surface features, thus enhancing surface area relative to the inorganic control. The highly textured hybrid material was more susceptible than the control to acidic and enzymatic degradation. The amino acid cysteine was covalently linked to the hybrid material, demonstrating the potential of this coating for further functionalization. These hybrid coatings may prove useful in enhancing the bioactivity of titanium.

CONTROLLED TERM: Calcium Chloride: CH, chemistry
*Calcium Phosphates: CH, chemistry
*Coated Materials, Biocompatible: CS, chemical synthesis
Electron Probe Microanalysis
Humans
Hydrogen-Ion Concentration
Microscopy, Electron, Scanning
Peptide Hydrolases: CH, chemistry
Phosphates: CH, chemistry
*Polylysine: CH, chemistry
Research Support, U.S. Gov't, Non-P.H.S.
Spectrometry, X-Ray Emission
Spectroscopy, Fourier Transform Infrared
*Titanium: CH, chemistry
X-Ray Diffraction

CAS REGISTRY NO.: 10043-52-4 (Calcium Chloride); 10103-46-5 (calcium phosphate); 25104-18-1 (Polylysine); 7440-32-6 (Titanium); 7632-05-5 (sodium phosphate)

CHEMICAL NAME: 0 (Calcium Phosphates); 0 (Coated Materials, Biocompatible); 0 (Phosphates); EC 3.4.- (Peptide Hydrolases)

L138 ANSWER 2 OF 31 MEDLINE on STN DUPLICATE 5
ACCESSION NUMBER: 2004098611 MEDLINE
DOCUMENT NUMBER: PubMed ID: 14739465
TITLE: Selective differentiation of neural progenitor cells by high-epitope density nanofibers.
AUTHOR: Silva Gabriel A; Czeisler Catherine; **Niece Krista L**; Beniash Elia; Harrington Daniel A; Kessler John A; **Stupp Samuel I**
CORPORATE SOURCE: Institute for Bioengineering and Nanoscience in Advanced Medicine, Northwestern University, Chicago, IL 60611, USA.. gsilva@ucsd.edu
CONTRACT NUMBER: NS20013 (NINDS)
NS20778 (NINDS)

NS34758 (NINDS)
SOURCE: Science, (2004 Feb 27) 303 (5662) 1352-5. Electronic Publication: 2004-01-22.
Journal code: 0404511. ISSN: 1095-9203.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200403
ENTRY DATE: Entered STN: 20040302
Last Updated on STN: 20040319
Entered Medline: 20040318

ABSTRACT:
Neural progenitor cells were encapsulated in vitro within a three-dimensional network of nanofibers formed by self-assembly of peptide amphiphile molecules. The self-assembly is triggered by mixing cell suspensions in media with dilute aqueous solutions of the molecules, and cells survive the growth of the nanofibers around them. These nanofibers were designed to present to cells the neurite-promoting laminin epitope IKVAV at nearly van der Waals density. Relative to laminin or soluble peptide, the artificial nanofiber scaffold induced very rapid differentiation of cells into neurons, while discouraging the development of astrocytes. This rapid selective differentiation is linked to the amplification of bioactive epitope presentation to cells by the nanofibers.

CONTROLLED TERM:
Animals
Astrocytes: CY, cytology
*Cell Differentiation
Cell Movement
Cell Survival
Cells, Cultured
Diffusion
Epitopes
Glial Fibrillary Acidic Protein: AN, analysis
Hydrogen Bonding
Hydrophobicity
Laminin: AD, administration & dosage
Laminin: CH, chemistry
Laminin: IM, immunology
*Laminin: ME, metabolism
Mice
*Nanotechnology
Neurites: PH, physiology
Neurites: UL, ultrastructure
*Neurons: CY, cytology
Neurons: PH, physiology
Peptide Fragments: AD, administration & dosage
Peptide Fragments: CH, chemistry
*Peptide Fragments: ME, metabolism
Rats
Research Support, U.S. Gov't, Non-P.H.S.
Research Support, U.S. Gov't, P.H.S.
Spinal Cord
*Stem Cells: CY, cytology
Stem Cells: PH, physiology
Tubulin: AN, analysis

CAS REGISTRY NO.: 131167-89-0 (isoleucyl-lysyl-valyl-alanyl-valine)
CHEMICAL NAME: 0 (Epitopes); 0 (Glial Fibrillary Acidic Protein); 0 (Laminin); 0 (Peptide Fragments); 0 (Tubulin)

L138 ANSWER 3 OF 31 MEDLINE on STN DUPLICATE 6

ACCESSION NUMBER: 2003272403 MEDLINE
DOCUMENT NUMBER: PubMed ID: 12797766
TITLE: Self-assembly combining two bioactive peptide-amphiphile molecules into nanofibers by electrostatic attraction.
AUTHOR: **Niece Krista L**; Hartgerink Jeffrey D; Donners Jack J J M; **Stupp Samuel I**
CORPORATE SOURCE: Departments of Materials Science, and the Feinberg School of Medicine, Northwestern University, 2220 Campus Drive, Evanston, Illinois 60208, USA.
SOURCE: Journal of the American Chemical Society, (2003 Jun 18) 125 (24) 7146-7.
Journal code: 7503056. ISSN: 0002-7863.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200307
ENTRY DATE: Entered STN: 20030612
Last Updated on STN: 20030729
Entered Medline: 20030728
CONTROLLED TERM: Amino Acid Sequence
Electrostatics
Hydrogen-Ion Concentration
*Laminin: CH, chemistry
Microscopy, Electron
Nanotechnology: MT, methods
*Oligopeptides: CH, chemistry
*Peptide Fragments: CH, chemistry
*Peptides: CS, chemical synthesis
Research Support, U.S. Gov't, Non-P.H.S.
CAS REGISTRY NO.: 110590-64-2 (tyrosyl-isoleucyl-glycyl-seryl-arginine); 131167-89-0 (isoleucyl-lysyl-valyl-alanyl-valine); 99896-85-2 (arginyl-glycyl-aspartic acid)
CHEMICAL NAME: 0 (Laminin); 0 (Oligopeptides); 0 (Peptide Fragments); 0 (Peptides)

L138 ANSWER 4 OF 31 MEDLINE on STN DUPLICATE 7
ACCESSION NUMBER: 2003533973 MEDLINE
DOCUMENT NUMBER: PubMed ID: 14613245
TITLE: Colonization of organoapatite-titanium mesh by preosteoblastic cells.
AUTHOR: **Spoerke Erik D**; **Stupp Samuel I**
CORPORATE SOURCE: Department of Materials Science and Engineering, Feinberg School of Medicine, Northwestern University, 2220 Campus Drive, Evanston, Illinois 60208, USA.
SOURCE: J Biomed Mater Res A, (2003 Dec 1) 67 (3) 960-9.
Journal code: 101234237. ISSN: 1549-3296.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200409
ENTRY DATE: Entered STN: 20031113
Last Updated on STN: 20040915
Entered Medline: 20040914

ABSTRACT:
Titanium (Ti) and its alloys continue to serve as successful implant materials for skeletal repair because of their physical properties and biocompatibility. This study investigates the influence of organoapatite (OA), grown directly onto an L-shaped Ti mesh, on preosteoblastic cellular colonization. Unseeded

mesh samples were placed on subconfluent layers of MC3T3-E1 murine calvaria cells and cultured for up to 2 weeks. Cells demonstrated accelerated colonization of the three-dimensional OA-Ti mesh substrates over bare Ti controls. Cells also showed significantly increased proliferation on the OA-Ti mesh over bare Ti controls. Cellular differentiation, measured by alkaline phosphatase and osteocalcin expression, was observed at late stages of the experiment with no notable differences between OA-Ti mesh and bare Ti controls. These results suggest that OA grown onto porous Ti substrates is capable of inducing accelerated colonization of unseeded implant structures by osteogenic cells.

CONTROLLED TERM: Animals
*Bone Substitutes: CH, chemistry
Cell Culture Techniques: MT, methods
Cell Differentiation
Cell Division
Cell Line
*Durapatite
Mice
*Osteoblasts: CY, cytology
Research Support, U.S. Gov't, Non-P.H.S.
*Tissue Engineering: MT, methods

CAS REGISTRY NO.: 1306-06-5 (Durapatite)

CHEMICAL NAME: 0 (Bone Substitutes)

L138 ANSWER 5 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 2

ACCESSION NUMBER: 2004:1059373 CAPLUS

DOCUMENT NUMBER: 142:16772

TITLE: Self-assembling **peptide-amphiphiles** and self-assembled **peptide** nanofiber networks for tissue engineering

INVENTOR(S): **Stupp, Samuel I.**; Hartgerink, Jeffrey D.; **Niece, Krista L.**

PATENT ASSIGNEE(S): Northwestern University, USA

SOURCE: PCT Int. Appl., 25 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004106359	A2	20041209	WO 2003-US29581	20030923

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2002-413101P P 20020923

ED Entered STN: 10 Dec 2004

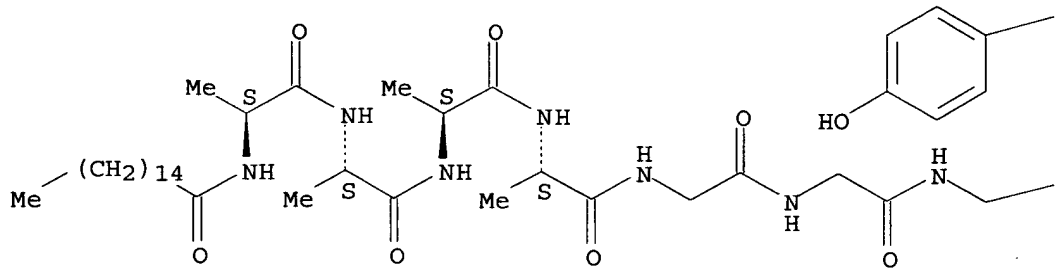
AB The present invention provides a mixture of self-assembling

peptide-amphiphiles with complementary charges whose design and function is patterned after proteins having biol. functions. The oppositely charged peptide amphiphiles may be self-assembled by combining them in a charge equivalent ratio. Variations of structural peptide sequences in the oppositely charged peptide-amphiphiles enable the assembled nanofibers to exhibit two or more biol. relevant signals. These peptide-amphiphiles or peptide-amphiphile networks or nanofibers may be used in tissue engineering. Thus, palmitoyl-AAAAGGGEIKVAV-CO2H and palmitoyl-AAAAGGGKYIGSR-CONH2 were prepared When combined in the appropriate ratio, produced nanofibers.

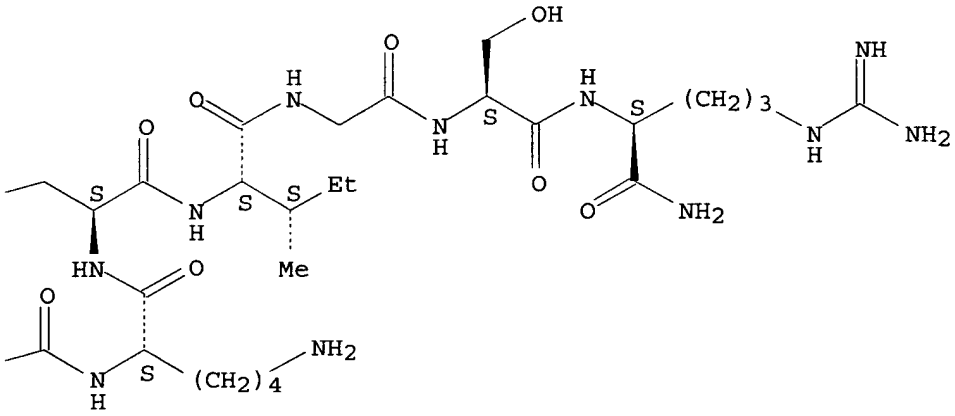
IC ICM C07K
CC 1-1 (Pharmacology)
ST self assembling **peptide amphiphile** tissue engineering
IT Animal tissue
(engineering; self-assembling **peptide-amphiphiles** and self-assembled **peptide** nanofiber networks for tissue engineering)
IT **Peptides**, biological studies
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(fatty acyl-modified; self-assembling **peptide-amphiphiles** and self-assembled **peptide** nanofiber networks for tissue engineering)
IT Nerve
(neuron, promotion of adhesion of; self-assembling **peptide-amphiphiles** and self-assembled **peptide** nanofiber networks for tissue engineering)
IT Axon
(promotion of outgrowth of; self-assembling **peptide-amphiphiles** and self-assembled **peptide** nanofiber networks for tissue engineering)
IT Adhesion, biological
Nanofibers
(self-assembling **peptide-amphiphiles** and self-assembled **peptide** nanofiber networks for tissue engineering)
IT 110590-64-2 131167-89-0
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(self-assembling **peptide-amphiphiles** and self-assembled **peptide** nanofiber networks for tissue engineering)
IT **586415-21-6P 586415-22-7P**
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(self-assembling **peptide-amphiphiles** and self-assembled **peptide** nanofiber networks for tissue engineering)
IT **586415-21-6P 586415-22-7P**
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(self-assembling **peptide-amphiphiles** and self-assembled **peptide** nanofiber networks for tissue engineering)
RN 586415-21-6 CAPLUS
CN L-Argininamide, N-(1-oxohexadecyl)-L-alanyl-L-alanyl-L-alanyl-L-alanylglycylglycylglycyl-L-lysyl-L-tyrosyl-L-isoleucylglycyl-L-seryl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



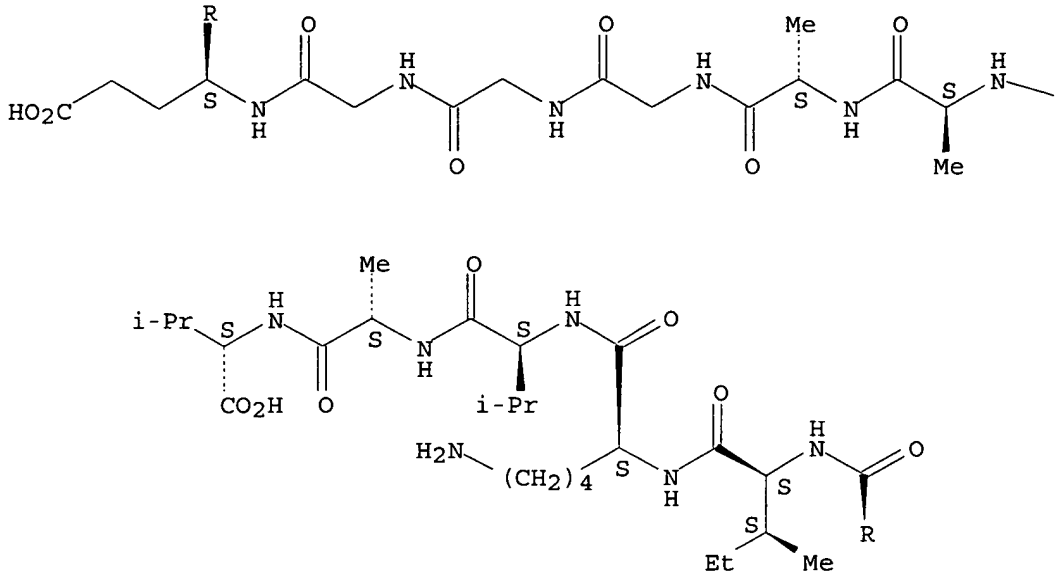
PAGE 1-B



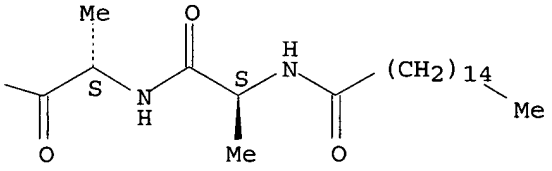
RN 586415-22-7 CAPLUS
CN L-Valine, N-(1-oxohexadecyl)-L-alanyl-L-alanyl-L-alanyl-L-alanylglycylglycylglycyl-L-α-glutamyl-L-isoleucyl-L-lysyl-L-valyl-L-alanyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



L138 ANSWER 6 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 3
ACCESSION NUMBER: 2004:702040 CAPLUS
DOCUMENT NUMBER: 141:230773
TITLE: Methods and materials for nanocrystalline surface coatings and attachment of **peptide amphiphile** nanofibers thereon
INVENTOR(S): **Stupp, Samuel I.; Spoerke, Erik D. ; Niece, Krista L.; Anthony, Shawn G.**
PATENT ASSIGNEE(S): Northwestern University, USA
SOURCE: PCT Int. Appl., 77 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004072104	A2	20040826	WO 2004-US4025	20040211

W: AE, AE, AG, AL, AL, AM, AM, AM, AT, AT, AU, AZ, AZ, BA, BB, BG,

BG, BR, BR, BW, BY, BY, BZ, BZ, CA, CH, CN, CN, CO, CO, CR, CR,
CU, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EC, EE, EE, EG, ES,
ES, FI, FI, GB, GD, GE, GE, GH, GM, HR, HR, HU, HU, ID, IL, IN,
IS, JP, JP, KE, KE, KG, KG, KP, KP, KP, KR, KR, KZ, KZ, KZ, LC,
LK, LR, LS, LS, LT, LU, LV, MA, MD, MD, MG, MK, MN, MW, MX, MX,
MZ, MZ, NA, NI
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,
MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG, BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG

US 2004258726 A1 20041223 US 2004-777030 20040211
PRIORITY APPLN. INFO.: US 2003-446421P P 20030211
US 2003-495965P P 20030818

ED Entered STN: 27 Aug 2004

AB The present invention relates to biocompatible composites comprising peptide amphiphiles and surface modified substrates and related methods for attachment thereon. Specifically, the nanotextured biocompatible composite comprises a biocompatible substrate, a calcium phosphate component on such said substrate and a nanotextured mineral phase on said calcium phosphate component, said mineral phase comprising calcium phosphate and poly(L-lysine). The invention further relates to a method of promoting growth of an amine-modified calcium phosphate composition, said method comprising: providing a biocompatible substrate; depositing a substantially single-phase calcium phosphate component on said substrate; and introducing said substrate to a calcium phosphate medium, said medium comprising a poly(L-lysine) component.

IC ICM C07K
CC 63-7 (Pharmaceuticals)
ST biocompatible composite nanocryst surface coating attachment **peptide amphiphile** nanofiber
IT Protein motifs
(RGD sequence, **peptide amphiphile** comprising; methods and materials for nanocryst. surface coatings and attachment of **peptide amphiphile** nanofibers thereon)
IT **Peptides**, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**amphiphile**; methods and materials for nanocryst. surface coatings and attachment of **peptide amphiphile** nanofibers thereon)
IT Enzymes, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(degradative, biocompatible composite mineral phase reactive with; methods and materials for nanocryst. surface coatings and attachment of **peptide amphiphile** nanofibers thereon)
IT Mammalia
Nanofibers
(methods and materials for nanocryst. surface coatings and attachment of **peptide amphiphile** nanofibers thereon)
IT Composites
(nanotextured biocompatible; methods and materials for nanocryst. surface coatings and attachment of **peptide amphiphile** nanofibers thereon)
IT Osteoblast
(preosteoblast, culture; methods and materials for nanocryst. surface coatings and attachment of **peptide amphiphile** nanofibers thereon)
IT Animal tissue culture
(preosteoblast; methods and materials for nanocryst. surface coatings and attachment of **peptide amphiphile** nanofibers

thereon)

IT 7757-93-9 7758-23-8 7758-87-4, Calcium phosphate 10103-46-5, Calcium phosphate 25104-18-1, Poly(L-lysine)
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biocompatible composite comprising; methods and materials for nanocryst. surface coatings and attachment of **peptide amphiphile** nanofibers thereon)

IT 7440-32-6, Titanium, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(methods and materials for nanocryst. surface coatings and attachment of **peptide amphiphile** nanofibers thereon)

IT 7440-70-2, Calcium, biological studies 14265-44-2, Phosphate, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(reactive reagent; methods and materials for nanocryst. surface coatings and attachment of **peptide amphiphile** nanofibers thereon)

IT 553655-46-2 553655-52-0 586415-27-2 746619-98-7 746619-99-8 746620-01-9 746620-02-0 746620-03-1 746620-04-2 746620-05-3 746620-06-4
RL: PRP (Properties)
(unclaimed sequence; methods and materials for nanocryst. surface coatings and attachment of **peptide amphiphile** nanofibers thereon)

L138 ANSWER 7 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 4
ACCESSION NUMBER: 2004:182985 CAPLUS
DOCUMENT NUMBER: 140:232131
TITLE: Charged **peptide-amphiphile** solutions & self-assembled **peptide** nanofiber networks formed therefrom
INVENTOR(S): **Stupp, Samuel I.; Spoerke, Erik D. ; Anthony, Shawn G.; Niece, Krista L.**
PATENT ASSIGNEE(S): Northwestern University, USA
SOURCE: PCT Int. Appl., 51 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004018628	A2	20040304	WO 2003-US26178	20030821
WO 2004018628	A3	20050421		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2002-405016P P 20020821
ED Entered STN: 05 Mar 2004
AB The present invention provides a system of self-assembling peptide amphiphiles with an absolute net charge of 3 or greater whose design and

function may be patterned after proteins involved in vertebrate mineralization or other tissue forming processes. This mol. system preferably consists of a hydrophobic **hydrocarbon tail** attached to a relatively hydrophilic peptide sequence. Self-assembly of this peptide amphiphile may be induced through pH variation, divalent ion addition, or dehydration. Variations of structural peptide sequences in the peptide amphiphile may enable the assembled nanofibers to be reversibly cross-linked for more or less structural stability, or may allow for control of the rate of self-assembly.

IC ICM C12N
CC 9-16 (Biochemical Methods)
ST charged **peptide amphiphile** soln self assembled nanofiber network
IT Animal tissue culture
Nanofibers
Protein sequences
(charged **peptide-amphiphile** solns. and self-assembled **peptide** nanofiber networks formed therefrom)
IT Proteins
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(charged **peptide-amphiphile** solns. and self-assembled **peptide** nanofiber networks formed therefrom)
IT Engineering
(tissue; charged **peptide-amphiphile** solns. and self-assembled **peptide** nanofiber networks formed therefrom)
IT 667426-97-3 667426-98-4
RL: PRP (Properties)
(Unclaimed; charged **peptide-amphiphile** solns. & self-assembled **peptide** nanofiber networks formed therefrom)
IT 7440-70-2, Calcium, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(charged **peptide-amphiphile** solns. and self-assembled **peptide** nanofiber networks formed therefrom)
IT **666173-90-6P 666173-91-7P**
RL: BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(charged **peptide-amphiphile** solns. and self-assembled **peptide** nanofiber networks formed therefrom)
IT 1306-06-5, Hydroxyapatite
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(charged **peptide-amphiphile** solns. and self-assembled **peptide** nanofiber networks formed therefrom)
IT 7440-32-6, Titanium, uses
RL: DEV (Device component use); USES (Uses)
(charged **peptide-amphiphile** solns. and self-assembled **peptide** nanofiber networks formed therefrom)
IT 667479-53-0
RL: PRP (Properties)
(unclaimed protein sequence; charged **peptide-amphiphile** solns. & self-assembled **peptide** nanofiber networks formed therefrom)
IT 551942-46-2
RL: PRP (Properties)
(unclaimed sequence; charged **peptide-amphiphile** solns. & self-assembled **peptide** nanofiber networks formed therefrom)
IT **666173-90-6P 666173-91-7P**
RL: BSU (Biological study, unclassified); SPN (Synthetic preparation); THU

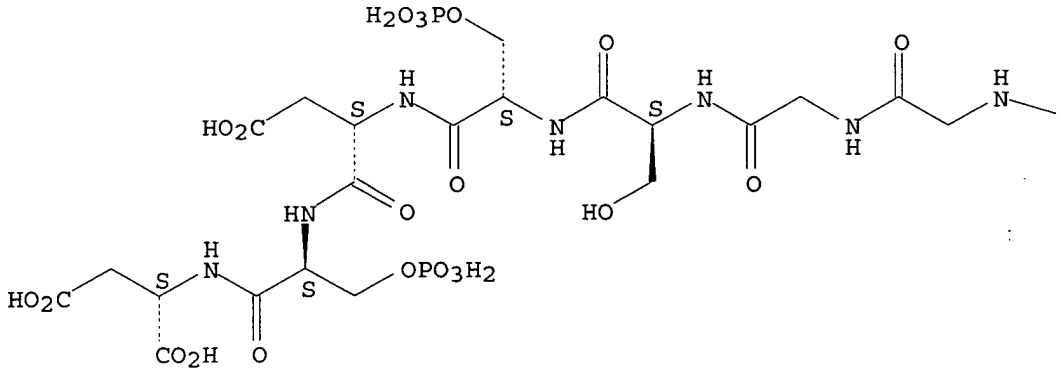
(Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(charged **peptide-amphiphile** solns. and
self-assembled **peptide** nanofiber networks formed therefrom)

RN 666173-90-6 CAPLUS

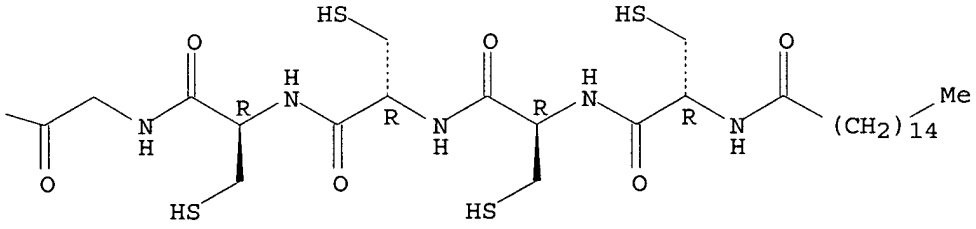
CN L-Aspartic acid, N-(1-oxohexadecyl)-L-cysteinyl-L-cysteinyl-L-cysteinylglycylglycylglycyl-L-seryl-O-phosphono-L-seryl-L-α-aspartyl-O-phosphono-L-seryl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

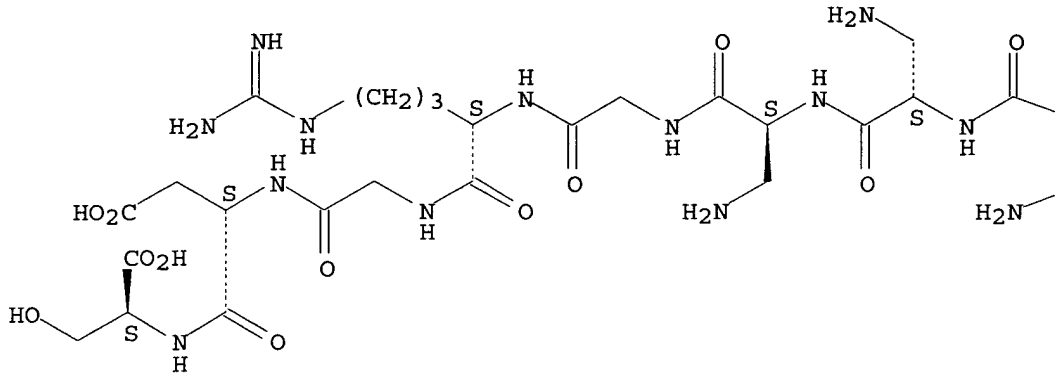


RN 666173-91-7 CAPLUS

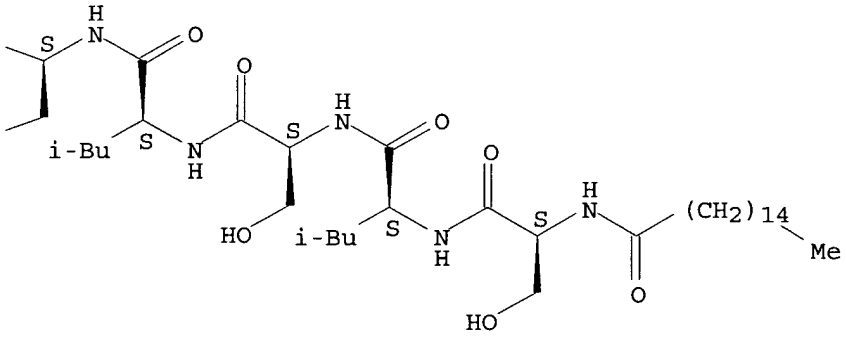
CN L-Serine, N-(1-oxohexadecyl)-L-seryl-L-leucyl-L-seryl-L-leucyl-3-amino-L-alanyl-3-amino-L-alanyl-3-amino-L-alanylglycyl-L-arginylglycyl-L-α-aspartyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



L138 ANSWER 8 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:547550 CAPLUS
DOCUMENT NUMBER: 143:65364
TITLE: Self-assembling peptide amphiphiles and related methods for growth factor delivery
INVENTOR(S): **Stupp, Samuel I.**; Donners, Jack J. J. M.; Silva, Gabriel A.; Behanna, Heather A.; **Anthony, Shawn G.**
PATENT ASSIGNEE(S): Northwestern University, USA
SOURCE: PCT Int. Appl., 45 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005056039	A1	20050623	WO 2004-US40550	20041206

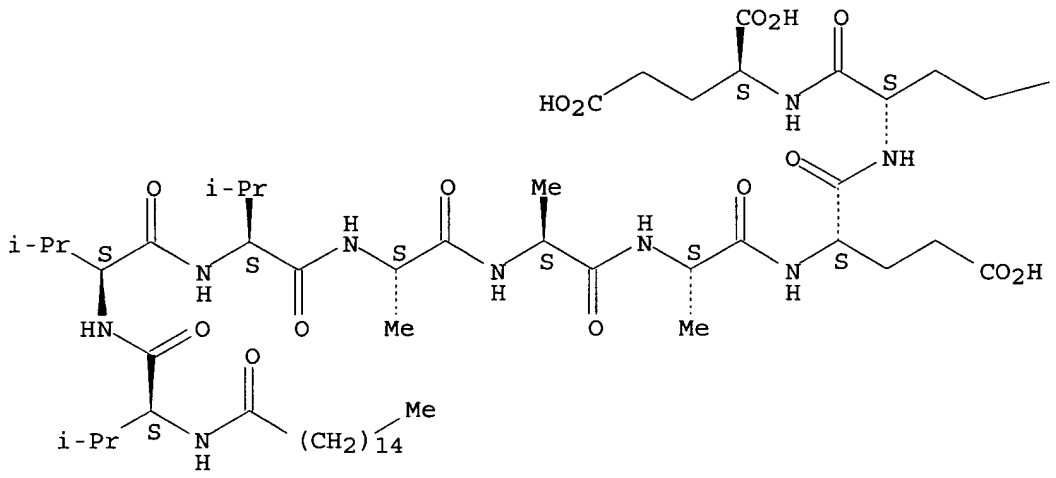
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,

CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 2005209145 A1 20050922 US 2004-5552 20041206
PRIORITY APPLN. INFO.: US 2003-527504P P 20031205
ED Entered STN: 24 Jun 2005
AB Amphiphilic peptide compds. comprising one or more epitope sequences for binding interaction with one or more corresponding growth factors, micellar assemblies of such compds. and related methods of use are disclosed.
IC ICM A61K038-00
CC 63-5 (Pharmaceuticals)
Section cross-reference(s): 2
IT **843663-78-5P** 843663-84-3P
RL: PNU (Preparation, unclassified); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(self-assembling peptide amphiphiles and related methods for growth factor delivery)
IT **843663-77-4P** 843663-79-6P 843663-80-9P 854623-58-8P
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(self-assembling peptide amphiphiles and related methods for growth factor delivery)
IT **843663-78-5P**
RL: PNU (Preparation, unclassified); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(self-assembling peptide amphiphiles and related methods for growth factor delivery)
RN 843663-78-5 CAPLUS
CN L-Glutamic acid, N-(1-oxohexadecyl)-L-valyl-L-valyl-L-valyl-L-alanyl-L-alanyl-L-alanyl-L-α-glutamyl-L-α-glutamyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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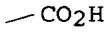
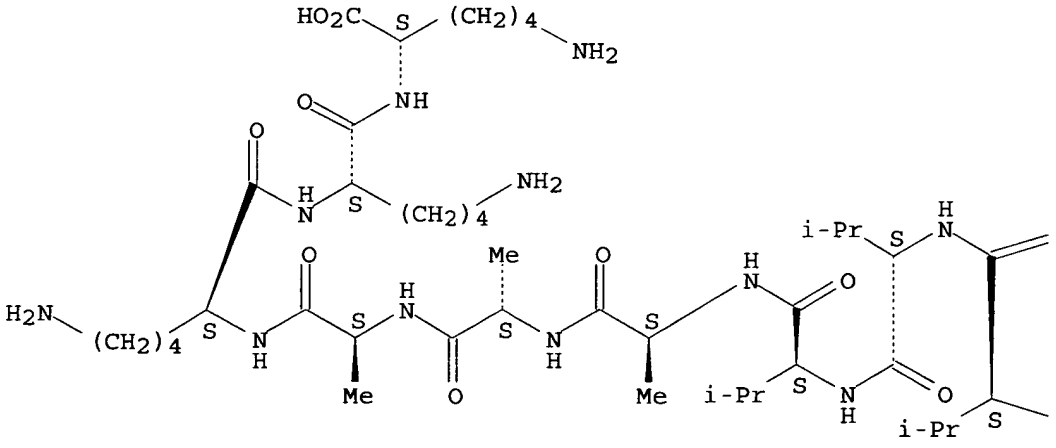


IT **843663-77-4P**
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(self-assembling peptide amphiphiles and related methods for growth factor delivery)
RN 843663-77-4 CAPLUS
CN L-Lysine, N-(1-oxohexadecyl)-L-valyl-L-valyl-L-valyl-L-alanyl-L-alanyl-L-alanyl-L-lysyl-L-lysyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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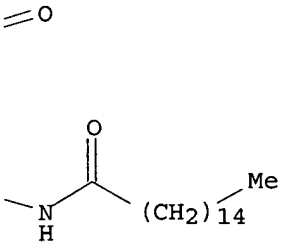


REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L138 ANSWER 9 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:34853 CAPLUS
DOCUMENT NUMBER: 142:141239
TITLE: Compositions for self-assembly and mineralization of peptide amphiphiles
INVENTOR(S): **Stupp, Samuel I.**; Beniash, Elia; Hartgerink, Jeffrey D.
PATENT ASSIGNEE(S): Northwestern University, USA
SOURCE: PCT Int. Appl., 39 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005003292	A2	20050113	WO 2003-US35902	20031112
WO 2005003292	A3	20050428		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
WO 2003070749	A2	20030828	WO 2003-US4779	20030218
WO 2003070749	A3	20040401		
W: AU, CA, CN, JP				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR				

PRIORITY APPLN. INFO.: US 2002-425536P P 20021112

US 2002-425689P P 20021112
WO 2003-US4779 A 20030218
US 2002-357228P P 20020215

ED Entered STN: 14 Jan 2005

AB The present invention is directed to a composition useful for making homogeneously mineralized self assembled peptide-amphiphile nanofibers and nanofiber gels. The composition is generally a solution comprised of a pos. or neg. charged peptide-amphiphile and a like signed ion from the mineral. Mixing this solution with a second solution containing a dissolved counter-ion of the mineral and/or a second oppositely charged peptide amphiphile, results in the rapid self assembly of the peptide-amphiphiles into a nanofiber gel and templated mineralization of the ions. Templated mineralization of the initially dissolved mineral cations and anions in the mixture occurs with preferential orientation of the mineral crystals along the fiber surfaces within the nanofiber gel. One advantage of the present invention is that it results in homogeneous growth of the mineral throughout the nanofiber gel. Another advantage of the present invention is that the nanofiber gel formation and mineralization reactions occur in a single mixing step and under substantially neutral or physiol. pH conditions. These homogeneous nanostructured composite materials are useful for medical applications especially the regeneration of damaged bone in mammals. This invention is directed to the synthesis of peptide-amphiphiles with more than one amphiphilic moment and to supramol. compns. comprised of such multi-dimensional peptide-amphiphiles. Supramol. compns. can be formed by self assembly of multi-dimensional peptide-amphiphiles by mixing them with a solution comprising a monovalent cation.

IC ICM C12N

CC 63-6 (Pharmaceuticals)

IT 56-45-1, Serine, biological studies 56-84-8, Aspartic acid, biological studies 1306-06-5, Hydroxylapatite **438533-88-1** **823810-16-8** 823810-17-9 **823810-18-0** 823810-19-1
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(composition for self-assembly and mineralization of peptide amphiphiles)

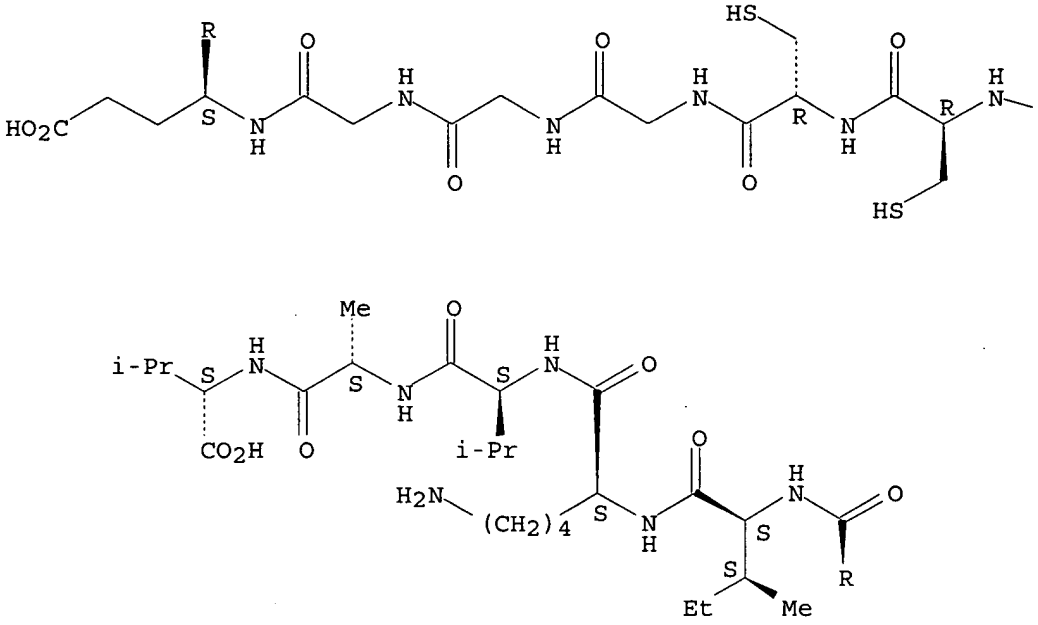
IT **438533-88-1 823810-16-8 823810-18-0**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(composition for self-assembly and mineralization of peptide amphiphiles)

RN 438533-88-1 CAPLUS

CN L-Valine, N-(1-oxohexadecyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-cysteinylglycylglycylglycyl-L-α-glutamyl-L-isoleucyl-L-lysyl-L-valyl-L-alanyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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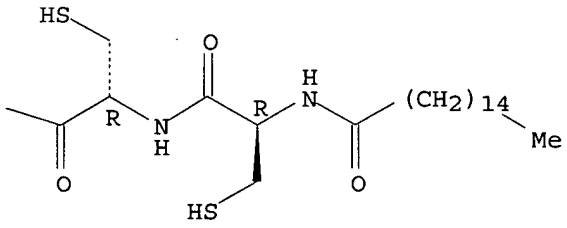
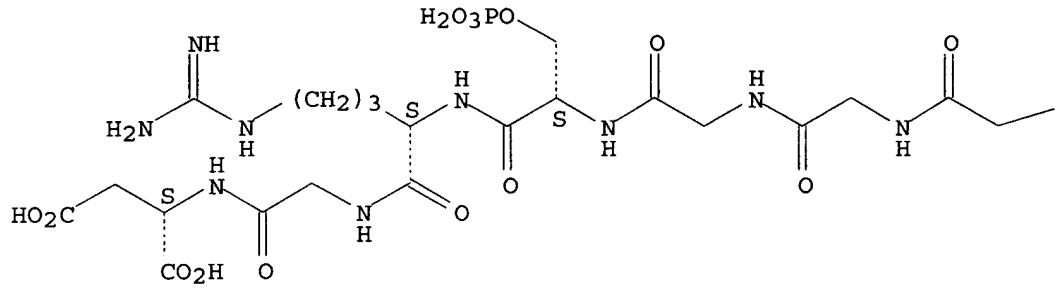


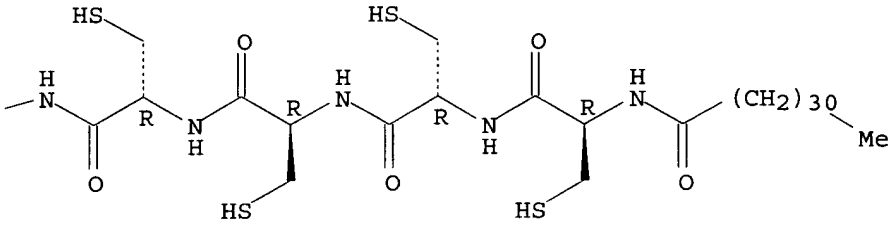
RN 823810-16-8 CAPLUS
CN L-Aspartic acid, N-(1-oxodotriacontyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-cysteinylglycylglycylglycyl-O-phosphono-L-seryl-L-arginylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



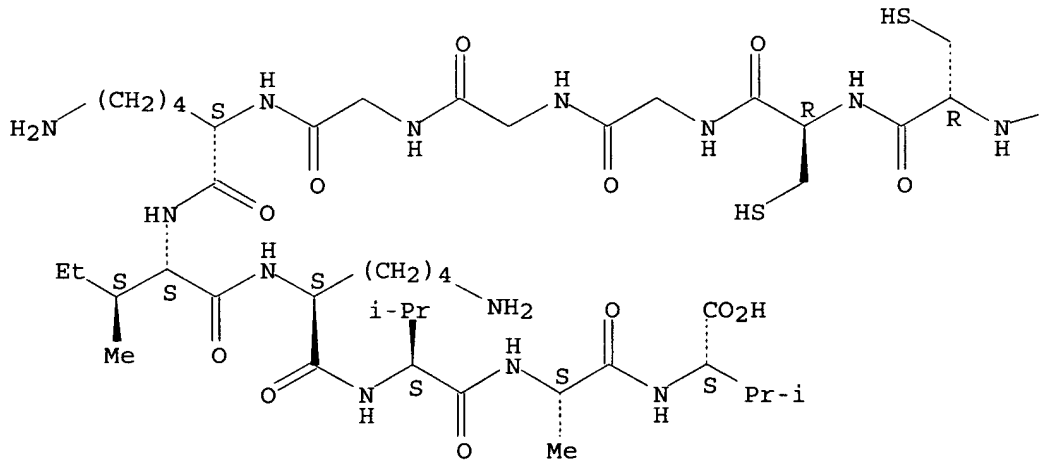
PAGE 1-B



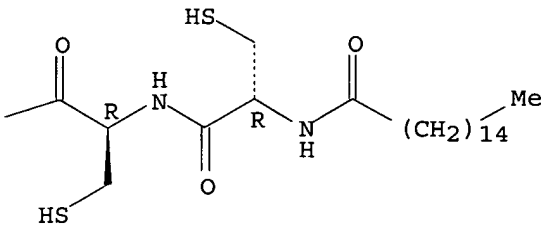
RN 823810-18-0 CAPLUS
CN L-Valine, N-(1-oxohexadecyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-cysteinylglycylglycylglycyl-L-lysyl-L-isoleucyl-L-lysyl-L-valyl-L-alanyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



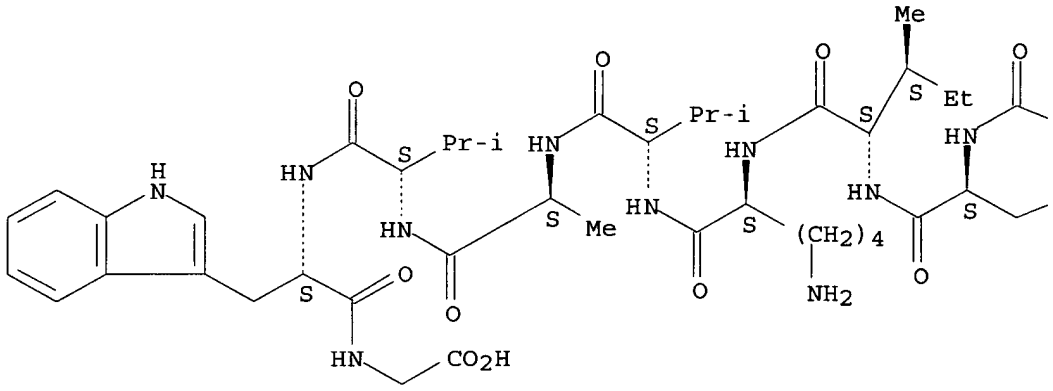
L138 ANSWER 10 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:380669 CAPLUS
DOCUMENT NUMBER: 143:73522
TITLE: Probing the Interior of Peptide Amphiphile Supramolecular Aggregates
AUTHOR(S): Tovar, John D.; Claussen, Randal C.; **Stupp, Samuel I.**
CORPORATE SOURCE: Department of Materials Science, Engineering Institute for BioNanotechnology in Medicine (IBNAM), Department of Chemistry, Feinberg School of Medicine, Northwestern University, Evanston, IL, 60208, USA
SOURCE: Journal of the American Chemical Society (2005), 127(20), 7337-7345
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 04 May 2005
AB We present a study of the aqueous solvation within self-assembled structures formed from peptide amphiphiles. We have placed tryptophan and pyrene chromophores onto the peptide backbone to enable spectroscopic examns. of the interior of the resulting supramol. objects. Self-assembly constrains the chromophores to a defined location within an aggregate, and they experience differing degrees of quencher penetration reflective of their depth within the nanostructure. Tryptophan fluorescence indicates that the interiors remain well-solvated, suggesting that the supramol. aggregates maintain high degrees of free volume The Stern-Volmer quenching consts. and the fractional accessibility (of covalently bound pyrene) progressively increase as the chromophore is placed closer to the aggregate exterior. Furthermore, these aggregates encourage chromophore uptake from aqueous solution as evidenced by the solubilization of free pyrene chromophores. Our findings demonstrate that covalently bound fluorophores within an aggregate can interact with the external environment. Studies with small mol. probes indicate that these self-assembled architectures may represent viable vehicles to sequester hydrophobic, insol. organic mols. (within the interior) and to present signaling protein epitopes to cells (on the periphery).
CC 6-3 (General Biochemistry)
IT **855780-15-3 855780-16-4** 855780-17-5
855780-18-6 855780-19-7
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(supramol. structure of peptide amphiphiles remains well solvated with chromophores)
IT **855780-15-3 855780-16-4 855780-18-6**
855780-19-7
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL

(Biological study)
(supramol. structure of peptide amphiphiles remains well solvated with chromophores)

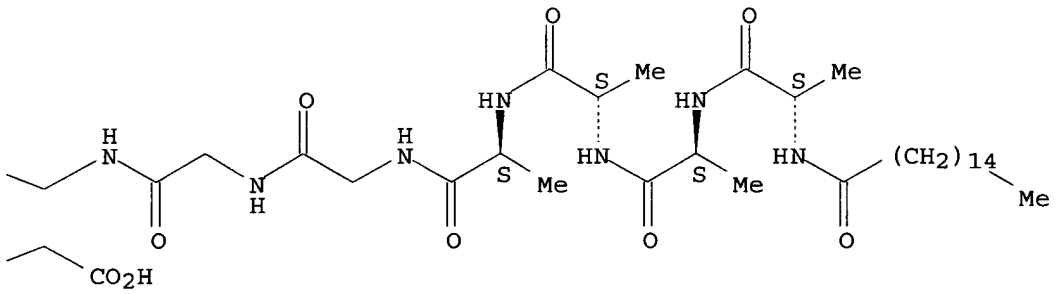
RN 855780-15-3 CAPLUS
CN Glycine, N-(1-oxohexadecyl)-L-alanyl-L-alanyl-L-alanyl-L-alanylglycylglycylglycyl-L-α-glutamyl-L-isoleucyl-L-lysyl-L-valyl-L-alanyl-L-valyl-L-tryptophyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



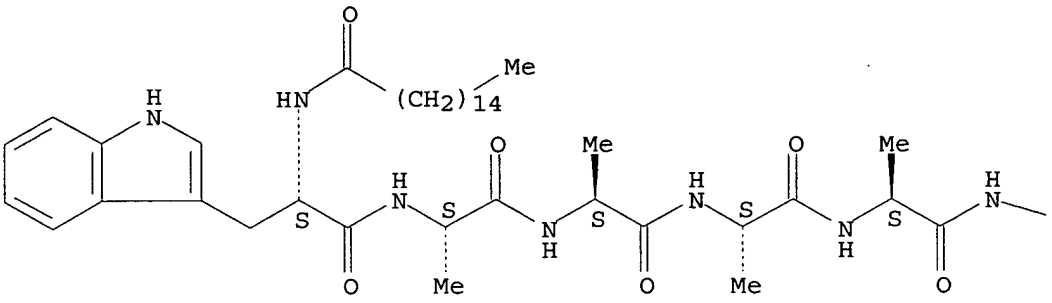
PAGE 1-B



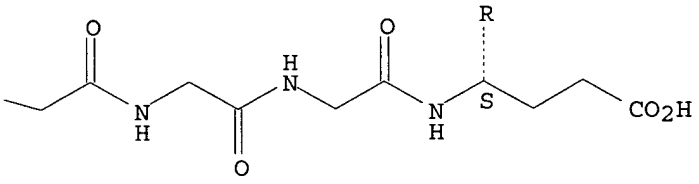
RN 855780-16-4 CAPLUS
CN L-Valine, N-(1-oxohexadecyl)-L-tryptophyl-L-alanyl-L-alanyl-L-alanyl-L-alanylglycylglycylglycyl-L-α-glutamyl-L-isoleucyl-L-lysyl-L-valyl-L-alanyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

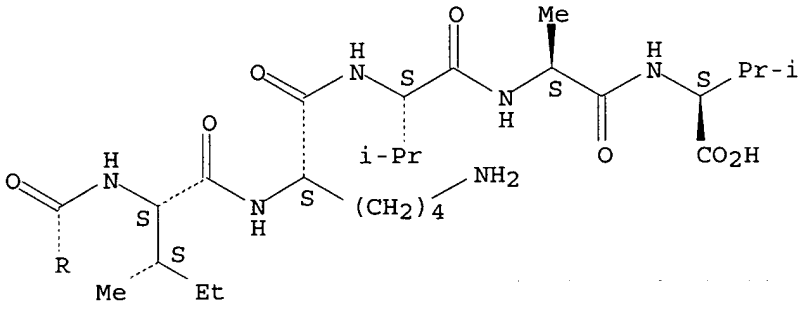
PAGE 1-A



PAGE 1-B



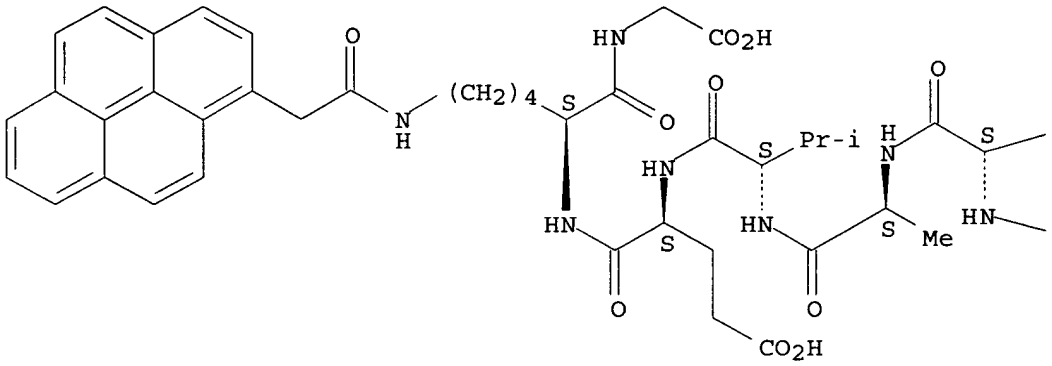
PAGE 2-A



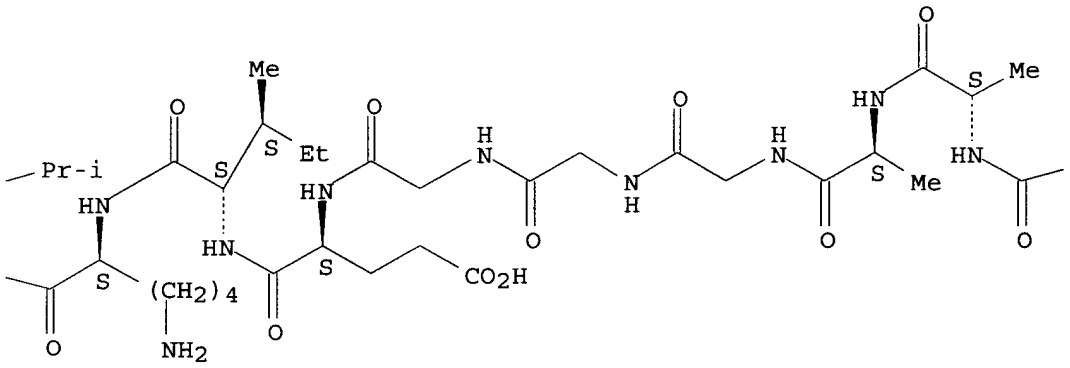
RN 855780-18-6 CAPLUS
CN Glycine, N-(1-oxohexadecyl)-L-alanyl-L-alanyl-L-alanyl-L-alanylglycylglycylglycyl-L-α-glutamyl-L-isoleucyl-L-lysyl-L-valyl-L-alanyl-L-valyl-L-α-glutamyl-N6-(1-pyrenylacetyl)-L-lysyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

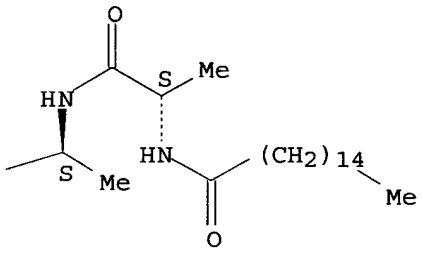
PAGE 1-A



PAGE 1-B



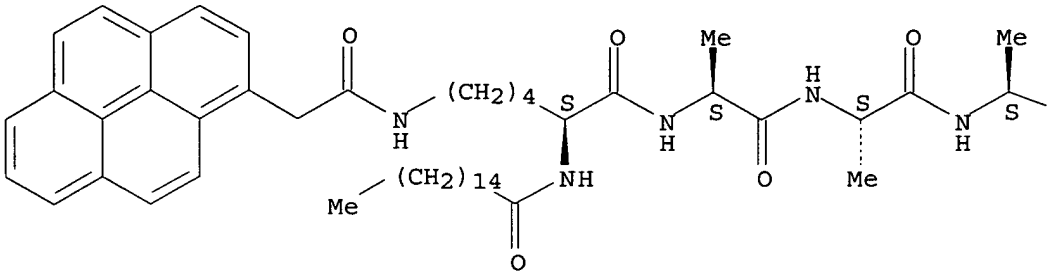
PAGE 1-C



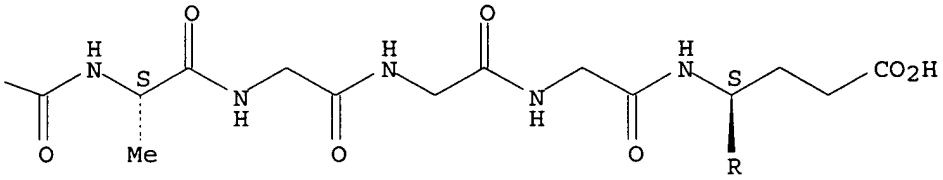
RN 855780-19-7 CAPLUS
CN L-Valine, N2-(1-oxohexadecyl)-N6-(1-pyrenylacetyl)-L-lysyl-L-alanyl-L-alanyl-L-alanyl-L-alanylglycylglycylglycyl-L-α-glutamyl-L-isoleucyl-L-lysyl-L-valyl-L-alanyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

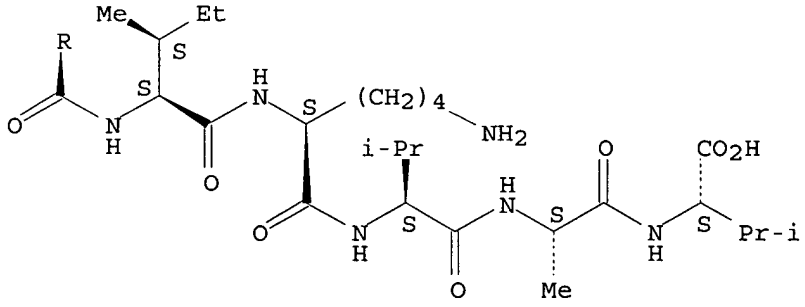
PAGE 1-A



PAGE 1-B



PAGE 2-A



REFERENCE COUNT: 56 THERE ARE 56 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

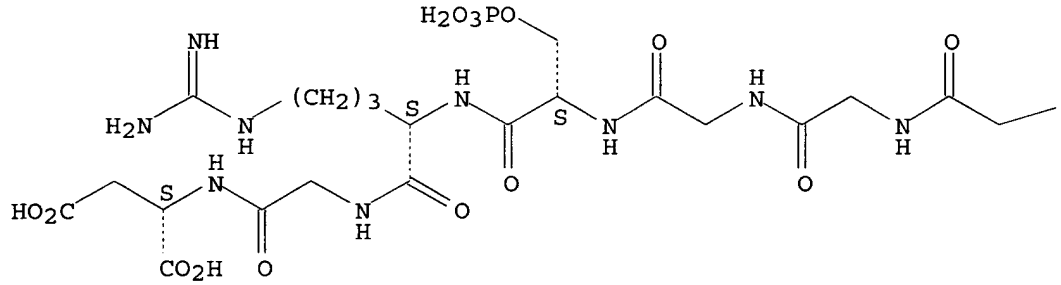
L138 ANSWER 11 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:396400 CAPLUS
DOCUMENT NUMBER: 143:44067
TITLE: Dip-Pen Patterning and Surface Assembly of Peptide Amphiphiles
AUTHOR(S): Jiang, Hongzhou; **Stupp, Samuel I.**
CORPORATE SOURCE: Department of Materials Science and Engineering, Department of Chemistry, and Feinberg School of Medicine, Northwestern University, Evanston, IL, 60208-3108, USA
SOURCE: Langmuir (2005), 21(12), 5242-5246
CODEN: LANGD5; ISSN: 0743-7463
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal

Searched by Barb O'Bryen, STIC 2-2518

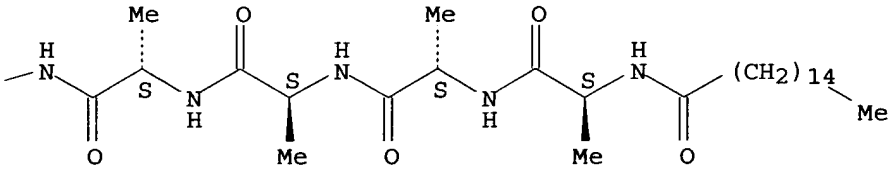
LANGUAGE: English
ED Entered STN: 10 May 2005
AB This paper presents results on controlling the surface morphol. of evaporation-driven self-assembly of peptide amphiphile (PA) nanofibers by dip-pen nanolithog. These PA nanofibers, which measure only a few nanometers in diameter, can be oriented perpendicularly to the receding edge of a solution Dragging a meniscus of PA ink with an atomic force microscope (AFM) tip creates reproducibly aligned arrays of isolated and close-packed PA nanofiber patterns on silicon substrates, utilizing surface coating of poly(ethylene glycol) to suppress the self-assembly of nanofibers on AFM tips. The authors also demonstrate the ability to construct double-layer patterns of differing nanofiber orientations at the same position. This result could be important in producing a complex, multilayer pattern of these peptide-based supramol. nanostructures.
CC 34-3 (Amino Acids, Peptides, and Proteins)
Section cross-reference(s): 66
IT **438533-83-6 853394-44-2**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(controlling surface morphol. of evaporation-driven self-assembly of peptide amphiphilic nanofibers by dip-pen nanolithog.)
IT **438533-83-6 853394-44-2**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(controlling surface morphol. of evaporation-driven self-assembly of peptide amphiphilic nanofibers by dip-pen nanolithog.)
RN 438533-83-6 CAPLUS
CN L-Aspartic acid, N-(1-oxohexadecyl)-L-alanyl-L-alanyl-L-alanyl-L-alanylglycylglycylglycyl-O-phosphono-L-seryl-L-arginylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

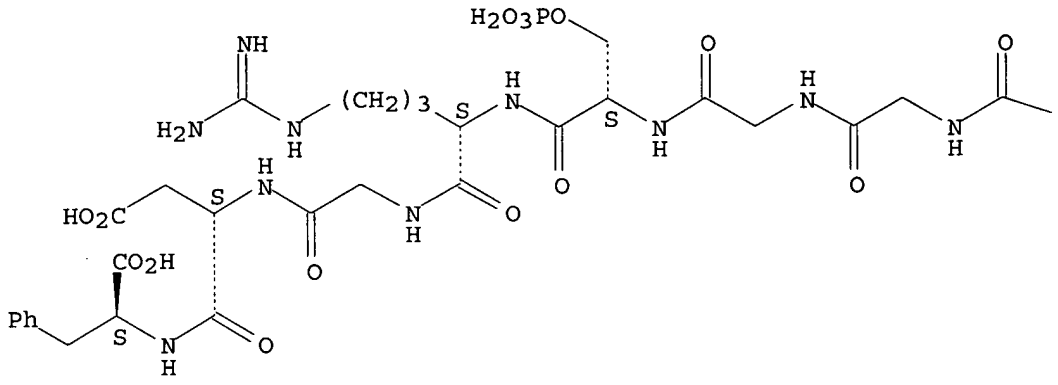


RN 853394-44-2 CAPLUS
CN L-Phenylalanine, N-(1-oxohexadecyl)-L-alanyl-L-alanyl-L-alanyl-L-

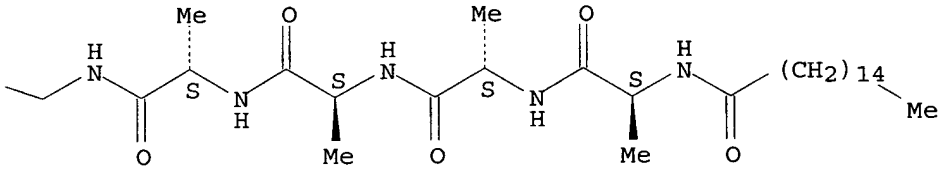
alanylglycylglycylglycyl-O-phosphono-L-seryl-L-arginylglycyl-L-α-aspartyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L138 ANSWER 12 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:257492 CAPLUS
DOCUMENT NUMBER: 142:459586
TITLE: Encapsulation of Carbon Nanotubes by Self-Assembling **Peptide Amphiphiles**
AUTHOR(S): Arnold, Michael S.; Guler, Mustafa O.; Hersam, Mark C.; **Stupp, Samuel I.**
CORPORATE SOURCE: Department of Materials Science and Engineering, Northwestern University, Evanston, IL, 60208, USA
SOURCE: Langmuir (2005), 21(10), 4705-4709
CODEN: LANGD5; ISSN: 0743-7463
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 25 Mar 2005
AB We demonstrate the dispersion and noncovalent functionalization of carbon nanotubes in water using peptide amphiphiles each consisting of a short hydrophobic **alkyl tail** coupled to a more hydrophilic peptide sequence. The assembly of peptide amphiphile mols. on the surfaces of carbon nanotubes adds biofunctionality to these one-dimensional conductors and simultaneously eliminates the hydrophobic nanotube-water interface, thus dispersing them in the aqueous medium. This should occur without the degradation of their structural, electronic, and optical properties caused by covalent functionalization and without the

need for specific peptide sequences designed to bind with nanotube surfaces. The encapsulation by peptide amphiphiles is confirmed using TEM and optical absorbance spectroscopy and may have significant future applications in biosensing or medicine.

CC 9-16 (Biochemical Methods)

ST encapsulation carbon nanotube selfassembly **peptide amphiphile** TEM spectrometry

IT Nanotubes
(carbon, single-walled, multi-walled; encapsulation of carbon nanotubes by self-assembling **peptide amphiphiles**)

IT Dispersion (of materials)
Encapsulation
Hydrophobicity
Metal lines
Protein sequences
Self-assembly
Transmission electron microscopes
UV and visible spectroscopy
(encapsulation of carbon nanotubes by self-assembling **peptide amphiphiles**)

IT **Peptides**, preparation
RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation)
(encapsulation of carbon nanotubes by self-assembling **peptide amphiphiles**)

IT **Amphiphiles**
(**peptide**; encapsulation of carbon nanotubes by self-assembling **peptide amphiphiles**)

IT 151-21-3, SDS, uses
RL: NUU (Other use, unclassified); USES (Uses)
(encapsulation of carbon nanotubes by self-assembling **peptide amphiphiles**)

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L138 ANSWER 13 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:23526 CAPLUS
DOCUMENT NUMBER: 142:219552
TITLE: Coassembly of Amphiphiles with Opposite Peptide Polarities into Nanofibers
AUTHOR(S): Behanna, Heather A.; Donners, Jack J. J. M.; Gordon, Alex C.; **Stupp, Samuel I.**
CORPORATE SOURCE: Department of Chemistry, Institute for BioNanotechnology in Medicine, Department of Materials Science & Engineering, and Feinberg School of Medicine, Northwestern University, Evanston, IL, 60208, USA
SOURCE: Journal of the American Chemical Society (2005), 127(4), 1193-1200
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 12 Jan 2005
AB The design, synthesis, and characterization of "reverse" peptide amphiphiles (PAs) with free N-termini is described. Use of an unnatural amino acid modified with a fatty acid tail allows for the synthesis of this new class of PA mols. The mixing of these mols. with complementary ones containing a free C-terminus results in coassembled structures, as demonstrated by CD and NOE/NMR spectroscopy. These assemblies show unusual thermal stability when compared to assemblies composed of only one

type of PA mol. This class of reverse PAs has made it possible to create biol. significant assemblies with free N-terminal peptide sequences, which were previously inaccessible, including those derived from phage display methodologies.

CC 34-3 (Amino Acids, Peptides, and Proteins)
Section cross-reference(s): 22

IT **843663-77-4P 843663-78-5P** 843663-79-6P 843663-80-9P
843663-84-3P 843663-85-4P
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(preparation, conformations, and nanofiber co-assembly of peptide amphiphiles)

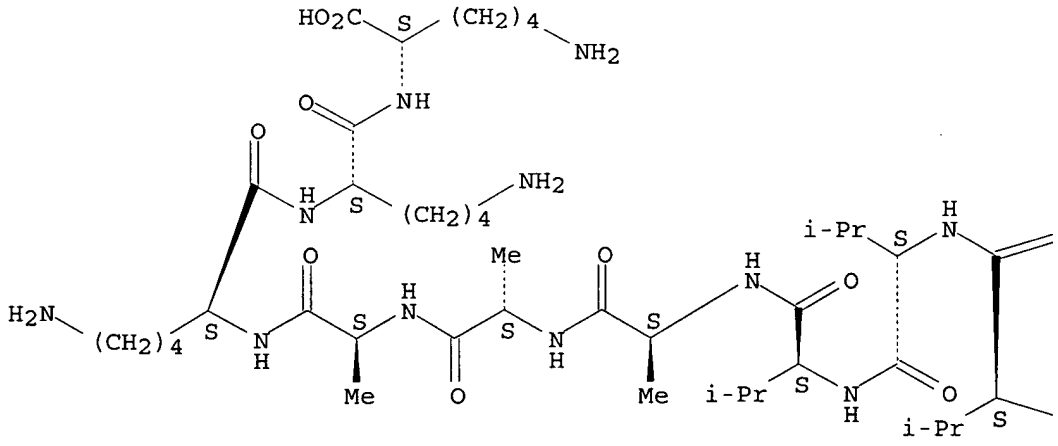
IT **843663-77-4P 843663-78-5P**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(preparation, conformations, and nanofiber co-assembly of peptide amphiphiles)

RN 843663-77-4 CAPLUS

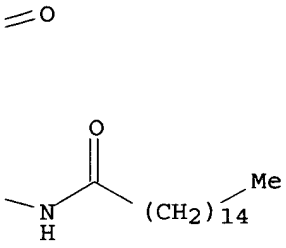
CN L-Lysine, N-(1-oxohexadecyl)-L-valyl-L-valyl-L-valyl-L-alanyl-L-alanyl-L-alanyl-L-lysyl-L-lysyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



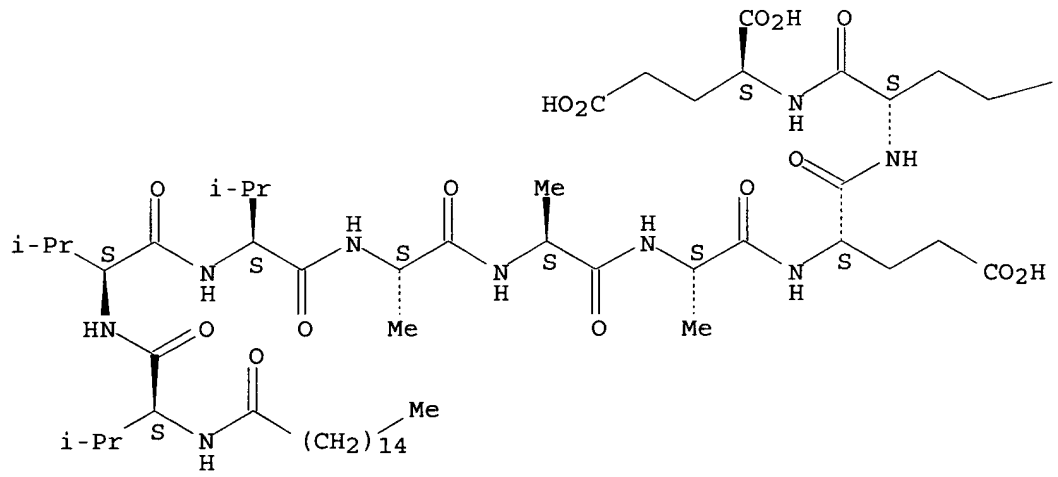
PAGE 1-B



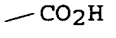
RN 843663-78-5 CAPLUS
CN L-Glutamic acid, N-(1-oxohexadecyl)-L-valyl-L-valyl-L-valyl-L-alanyl-L-alanyl-L-alanyl-L-α-glutamyl-L-α-glutamyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L138 ANSWER 14 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:194048 CAPLUS
TITLE: Self-assembling **peptide amphiphile** nanofiber scaffolds to facilitate islet cell transplantation
AUTHOR(S): Stendahl, John C.; Wang, Ling-Jia; Guler, Mustafa O.; Zhang, Xiaomin; Chen, Xiaojuan; Kaufman, Dixon B.; **Stupp, Samuel I.**
CORPORATE SOURCE: Department of Materials Science and Engineering, Northwestern University, Evanston, IL, 60208, USA
SOURCE: Abstracts of Papers, 229th ACS National Meeting, San Diego, CA, United States, March 13-17, 2005 (2005), PMSE-329. American Chemical Society: Washington, D. C.
CODEN: 69GQMP
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
ED Entered STN: 06 Mar 2005
AB Peptide amphiphiles (PA) containing **alkyl tails** and hydrophilic peptide segments self-assemble into networks of well-defined nanofibers that can be molecularly tailored for bioactivity. When assembled as gels or surface coatings, PA nanofibers may provide ideal scaffolds for the delivery and transplantation of islet cells to treat Type I diabetes. By creating microenvironments that mimic the highly complex structure and chemical functionality of extracellular matrix, PA nanofibers may help to improve islet engraftment in readily accessed sites and reduce strains on limitedly available donor tissue. Initial data from transplants in mice with streptozoticin-induced diabetes indicate that islets delivered via poly(L-lactic acid) scaffolds coated by PA nanofibers expressing the RGD cell adhesion epitope ameliorate diabetes at significantly greater rates than i.p. injections of equivalent islet quantities.

L138 ANSWER 15 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:772907 CAPLUS
DOCUMENT NUMBER: 141:403713
TITLE: Semiconductor-Encapsulated Peptide-Amphiphile Nanofibers
AUTHOR(S): Sone, Eli D.; **Stupp, Samuel I.**
CORPORATE SOURCE: Department of Chemistry, Department of Materials Science & Engineering, and Feinberg School of Medicine, Northwestern University, Evanston, IL, 60208, USA
SOURCE: Journal of the American Chemical Society (2004), 126(40), 12756-12757
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 23 Sep 2004
AB The authors report here on the use of peptide-amphiphile (PA) nanofibers displaying the S(P)RGD peptide sequence on their exterior as templates for the mineralization of Cd sulfide (CdS). At low Cd:PA ratios, the nanofibers nucleate and organize quantum-confined 3-5 nm CdS nanocrystals into linear arrays. Tubular structures, in which the PA fibers are completely encapsulated by the semiconductor, are produced at higher Cd:PA ratios.
CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 34
IT **393876-34-1**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP

(Physical process); PROC (Process)
(peptide-amphiphile; semiconductor-encapsulated peptide-amphiphile nanofibers for CdS nanocrystal growth and nucleation)

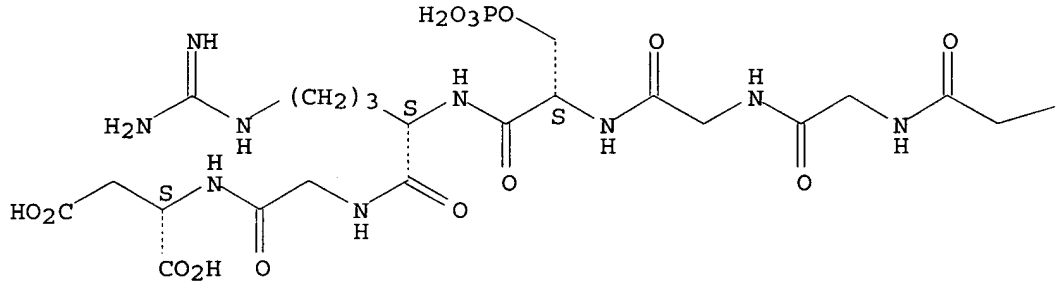
IT **393876-34-1**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(peptide-amphiphile; semiconductor-encapsulated peptide-amphiphile nanofibers for CdS nanocrystal growth and nucleation)

RN 393876-34-1 CAPLUS

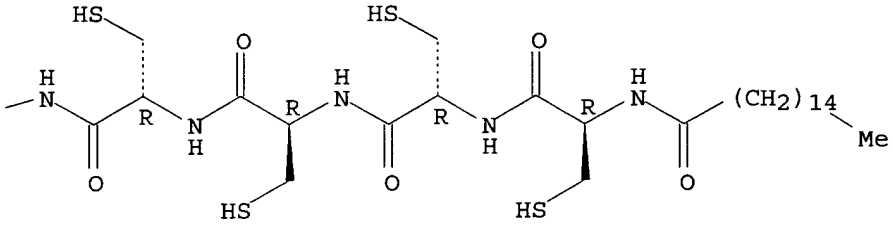
CN L-Aspartic acid, N-(1-oxohexadecyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-cysteinylglycylglycylglycyl-O-phosphono-L-seryl-L-arginylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L138 ANSWER 16 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:660430 CAPLUS
TITLE: Probing the interior of **peptide amphiphile** supramolecular aggregates
AUTHOR(S): Tovar, John D.; **Stupp, Samuel I.**
CORPORATE SOURCE: Department of Materials Science and Engineering, Northwestern University, Evanston, IL, 60208, USA
SOURCE: Abstracts of Papers, 228th ACS National Meeting, Philadelphia, PA, United States, August 22-26, 2004 (2004), PMSE-549. American Chemical Society: Washington, D. C.
CODEN: 69FTZ8
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
ED Entered STN: 15 Aug 2004
AB Supramol. architectures based upon self-assembling mols. are emerging as

powerful tools for biotechnol. Our group has exploited cylindrical micellar networks prepared from the assembly of peptide amphiphile (PA) mols. to direct the crystallog. oriented growth of hydroxyapatite and to induce selective differentiation of neural progenitor cells. These mols. are composed of an oligopeptide segment covalently linked to a long chain **hydrocarbon tail**, and they self-assemble into nanofibers with diams. of under 10 nm and lengths of several microns. After assembly, they present a high d. of bioactive oligopeptide signals to the surrounding environment while sequestering the **alkyl tails** within the center of the structure. While the aggregated **alkyl tails** furnish a hydrophobic region within the nanofiber, the solvation sphere of the oligopeptide moiety has not yet been interrogated after self-assembly. This report will present our work toward accomplishing this spectroscopic examination by rational placement of tryptophan residues within the PA mol. With these new PAs, we will present steady-state fluorescence and extrinsic quenching studies that will help to reveal the degree of hydrophobicity within the assembled aggregates.

L138 ANSWER 17 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:818441 CAPLUS
DOCUMENT NUMBER: 139:328403
TITLE: Peptide amphiphile solutions and self assembled peptide nanofiber networks
INVENTOR(S): **Stupp, Samuel I.**; Hartgerink, Jeffrey D.; Beniash, Elia
PATENT ASSIGNEE(S): Northwestern University, USA
SOURCE: PCT Int. Appl., 37 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003084980	A2	20031016	WO 2003-US10051	20030402
WO 2003084980	A3	20031211		

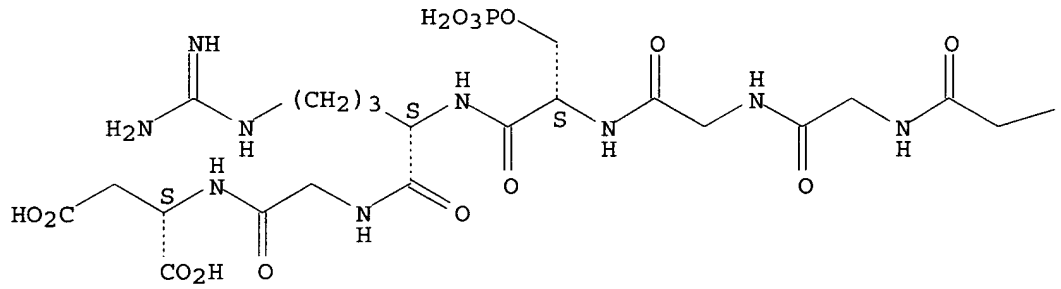
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2002-369638P P 20020402
ED Entered STN: 17 Oct 2003
AB Peptide amphiphile self assembly and gelation to form nanofiber networks having cells within the network are described. The mol. structure of peptide amphiphiles and compns. including them suitable for forming nanofiber networks with cells under physiol. conditions are also described. Methods to incorporate dissociated cells into self-assembled peptide amphiphile gels for molding of implants, in situ molding in animals, and injection of peptide amphiphile and cell compns. into an animal for tissue engineering and tissue repair applications are disclosed. The methods and compns. of the present invention are used to grow animal cells in a self assembled nanofiber network.

IC ICM C07K
CC 63-7 (Pharmaceuticals)
IT **393876-34-1 438533-83-6 438533-88-1**
586415-19-2
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(self-assembled peptide amphiphile gels and nanofiber networks as cell matrixes for tissue engineering)
IT **393876-34-1 438533-83-6 438533-88-1**
586415-19-2
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(self-assembled peptide amphiphile gels and nanofiber networks as cell matrixes for tissue engineering)
RN 393876-34-1 CAPLUS
CN L-Aspartic acid, N-(1-oxohexadecyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-cysteinylglycylglycylglycyl-O-phosphono-L-seryl-L-arginylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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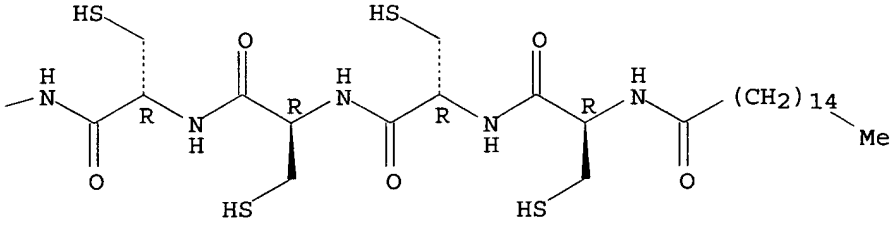

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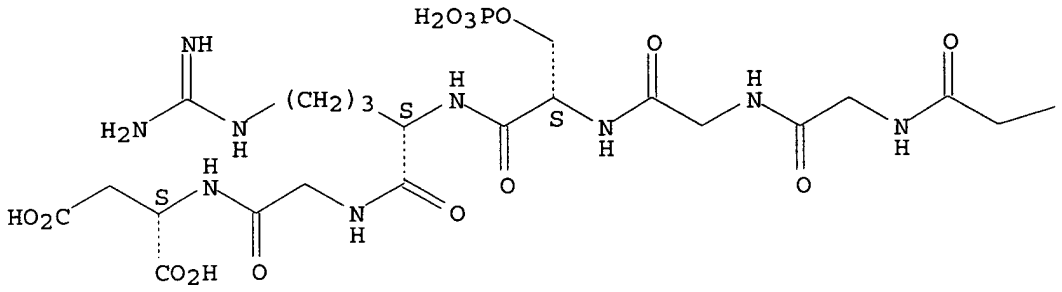
Absolute stereochemistry.

PAGE 1-A



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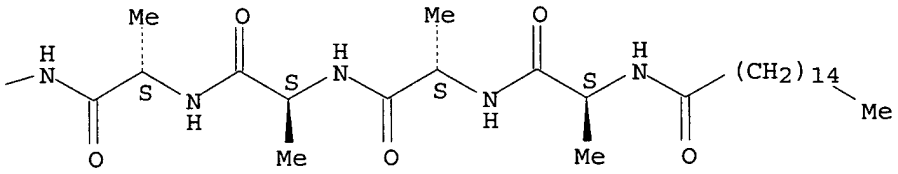
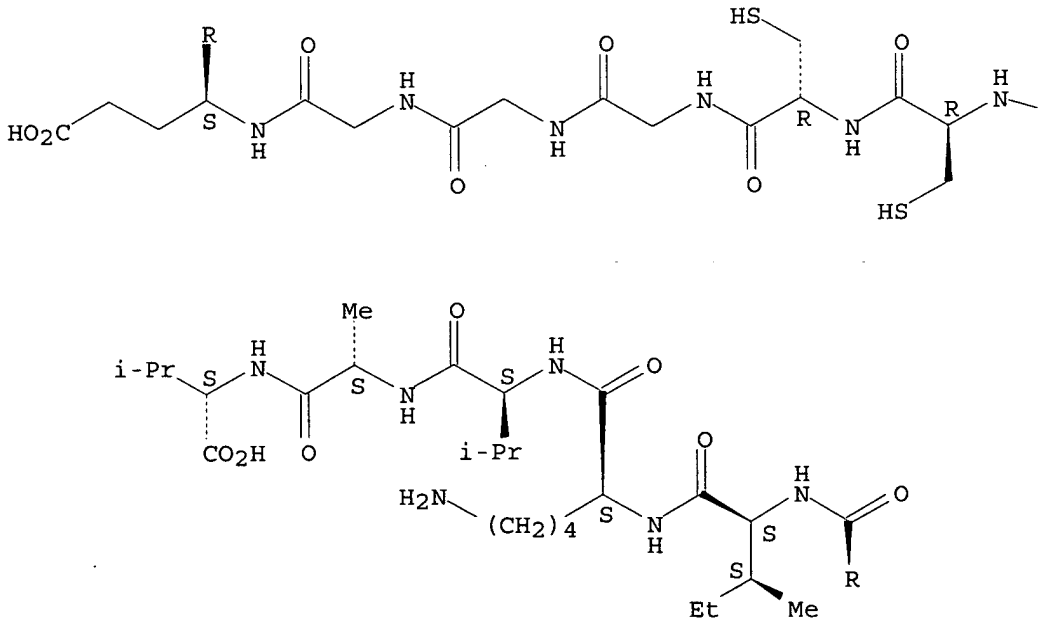


RN 438533-88-1 CAPLUS
CN L-Valine, N-(1-oxohexadecyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-cysteinylglycylglycylglycyl-L-α-glutamyl-L-isoleucyl-L-lysyl-L-valyl-L-alanyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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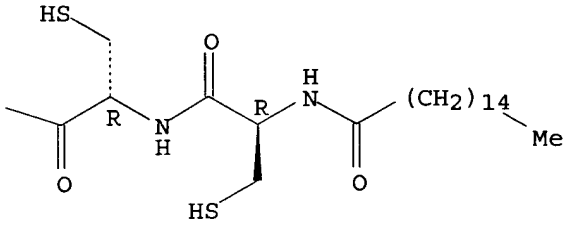

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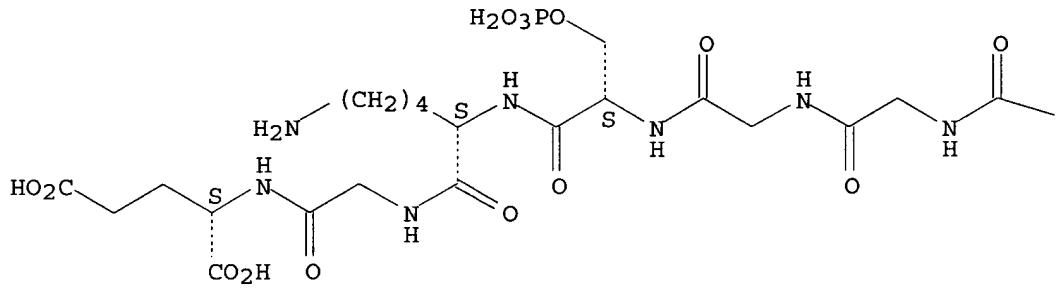
CN L-Glutamic acid, N-(1-oxohexadecyl)-L-alanyl-L-alanyl-L-alanyl-L-alanylglycylglycylglycyl-O-phosphono-L-seryl-L-lysylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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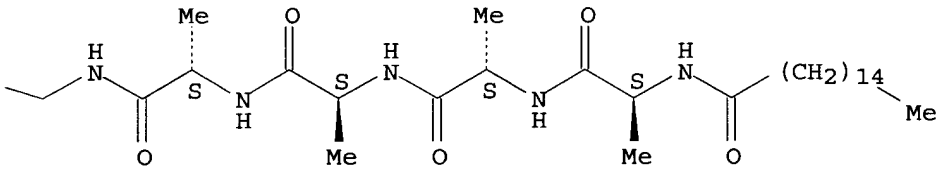

L138 ANSWER 18 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:678828 CAPLUS
DOCUMENT NUMBER: 139:210411
TITLE: Self-assembly of peptide-amphiphile nanofibers under physiological conditions for biomedical applications
INVENTOR(S): **Stupp, Samuel I.**; Hartgerink, Jeffrey D.; Beniash, Elia
PATENT ASSIGNEE(S): Northwestern University, USA
SOURCE: PCT Int. Appl., 54 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003070749	A2	20030828	WO 2003-US4779	20030218
WO 2003070749	A3	20040401		
W: AU, CA, CN, JP				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR				
US 2004001893	A1	20040101	US 2003-368517	20030218
WO 2005003292	A2	20050113	WO 2003-US35902	20031112
WO 2005003292	A3	20050428		
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RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRIORITY APPLN. INFO.:		
US 2002-357228P	P	20020215
US 2002-425536P	P	20021112
US 2002-425689P	P	20021112
WO 2003-US4779	A	20030218

ED Entered STN: 29 Aug 2003

AB The invention relates to peptide amphiphile compds., compns. and methods for self-assembly or nanofibrous network formation under neutral or physiol. conditions. The invention provides a sol-gel system comprising a peptide amphiphilic compound having a bioactive epitope sequence, a hydrophobic component, and net charge at substantially physiol. pH; and a reagent to induce gelation of the amphiphile compound

IC ICM C07K

CC 9-16 (Biochemical Methods)
Section cross-reference(s): 6, 63

IT **393876-34-1P** 438533-78-9P 438533-79-0P **438533-80-3P**
438533-81-4P 438533-82-5P 438533-83-6P
438533-84-7P 438533-85-8P 438533-86-9P
438533-87-0P 438533-88-1P 553655-46-2DP, N-alkyl derivative 553655-52-0DP, N-alkyl derivative **586415-16-9P**
586415-17-0P 586415-18-1P 586415-19-2P
586415-20-5P 586415-21-6P 586415-22-7P
586415-23-8DP, N-alkyl derivative 586415-24-9DP, N-alkyl derivative
586415-25-0DP, N-alkyl derivative 586415-26-1DP, N-alkyl derivative
586415-27-2P 586415-30-7DP, N-alkyl derivative 587060-18-2P 587060-19-3P
587060-20-6P
RL: BUU (Biological use, unclassified); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(peptide-amphiphile; self-assembly of peptide-amphiphile nanofibers under physiol. conditions for biomedical applications)

IT **393876-34-1P 438533-80-3P 438533-81-4P**
438533-82-5P 438533-83-6P 438533-84-7P
438533-85-8P 438533-86-9P 438533-87-0P
438533-88-1P 586415-16-9P 586415-17-0P
586415-18-1P 586415-19-2P 586415-20-5P
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RL: BUU (Biological use, unclassified); NUU (Other use, unclassified); PEP

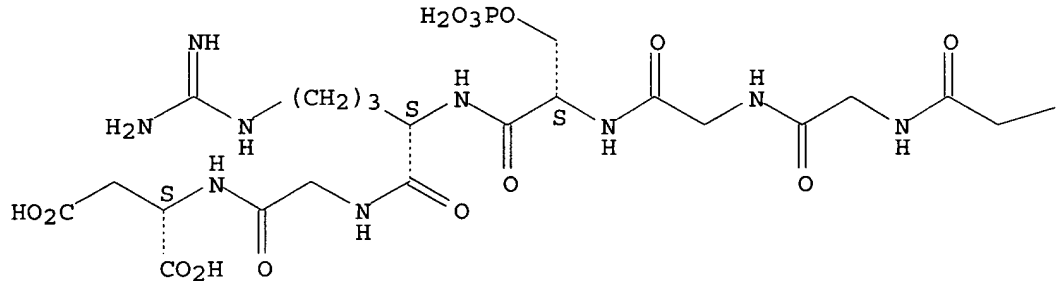
(Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(peptide-amphiphile; self-assembly of peptide-amphiphile nanofibers under physiol. conditions for biomedical applications)

RN 393876-34-1 CAPLUS

CN L-Aspartic acid, N-(1-oxohexadecyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-cysteinylglycylglycylglycyl-O-phosphono-L-seryl-L-arginylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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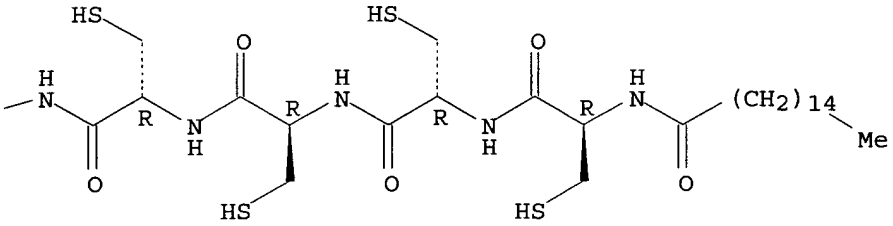

RN 438533-80-3 CAPLUS

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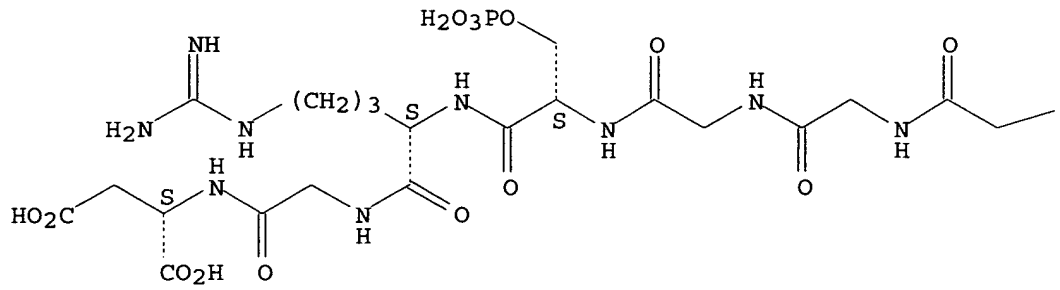
Absolute stereochemistry.

PAGE 1-A



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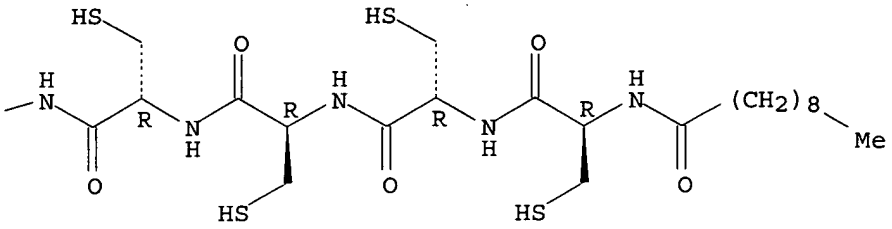

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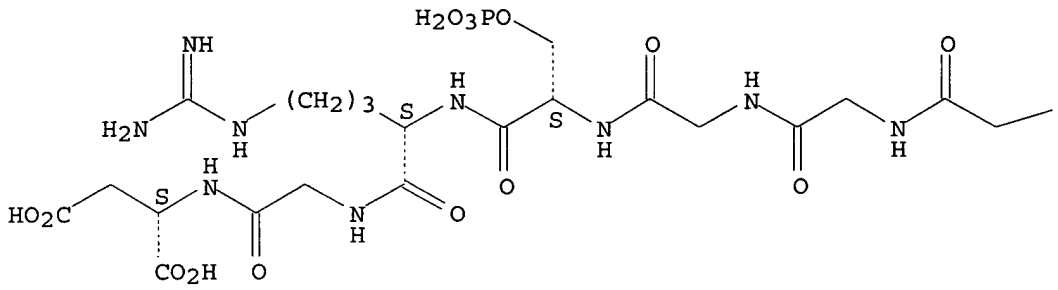
Absolute stereochemistry.

PAGE 1-A



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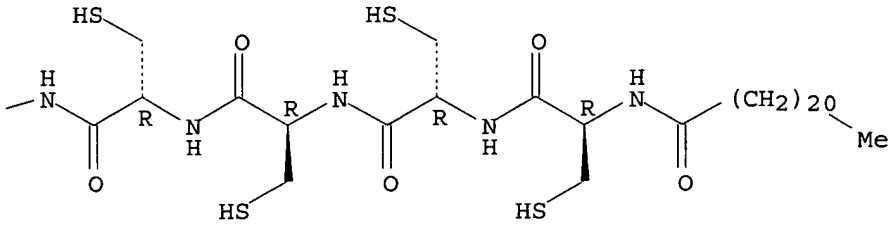

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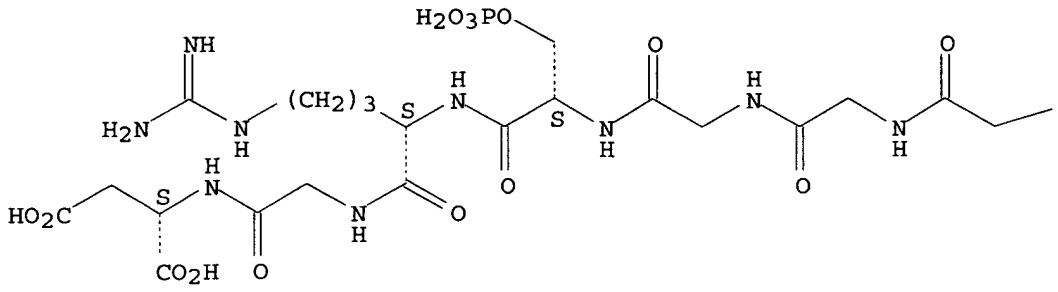
Absolute stereochemistry.

PAGE 1-A



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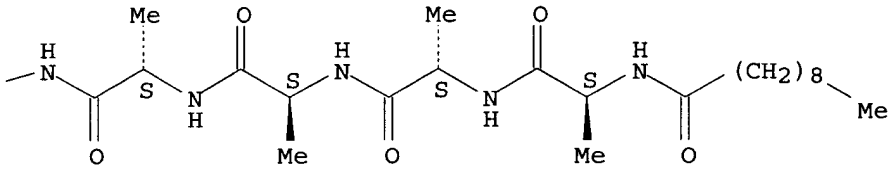
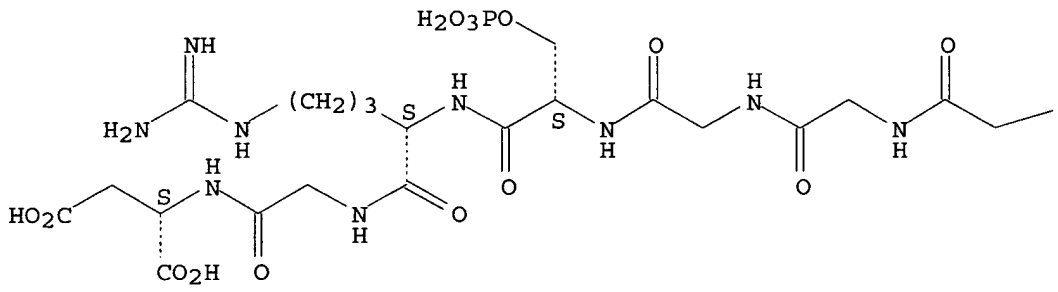


RN 438533-83-6 CAPLUS
CN L-Aspartic acid, N-(1-oxohexadecyl)-L-alanyl-L-alanyl-L-alanyl-L-alanylglycylglycylglycyl-O-phosphono-L-seryl-L-arginylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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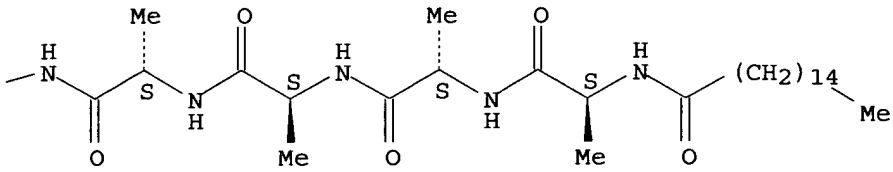

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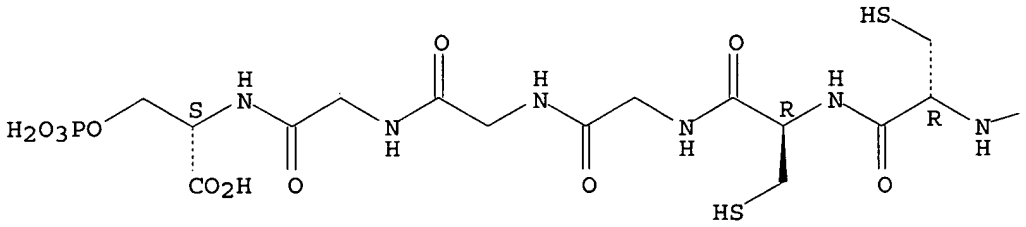
cysteinylglycylglycylglycyl-, 8-(dihydrogen phosphate) (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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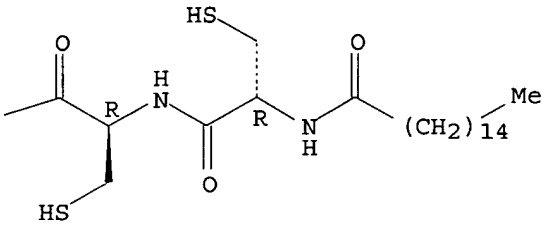

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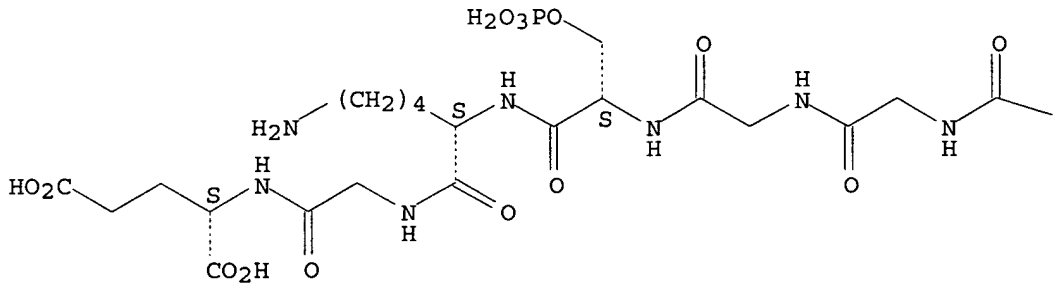
Absolute stereochemistry.

PAGE 1-A



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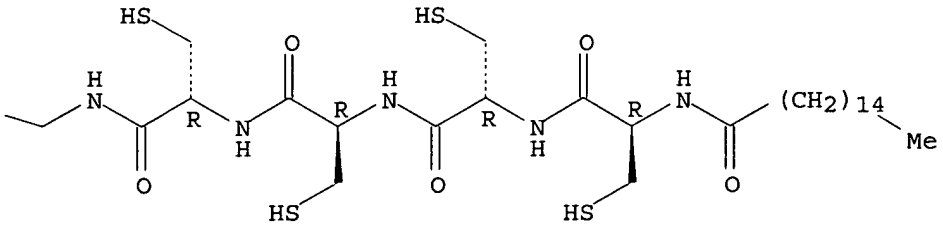

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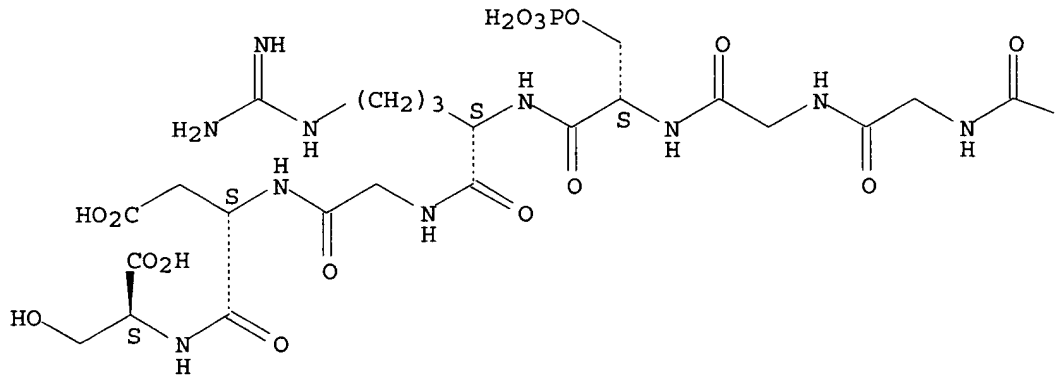
Absolute stereochemistry.

PAGE 1-A



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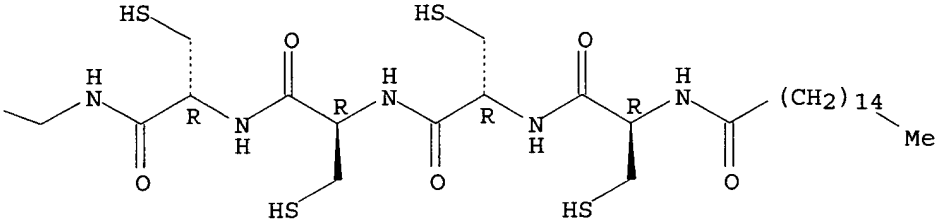

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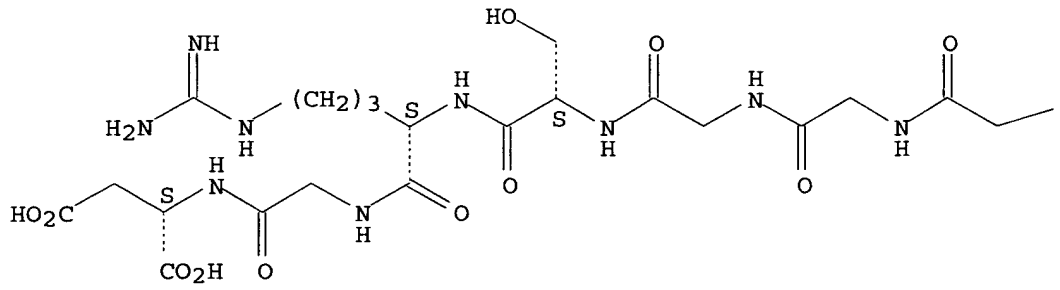
Absolute stereochemistry.

PAGE 1-A



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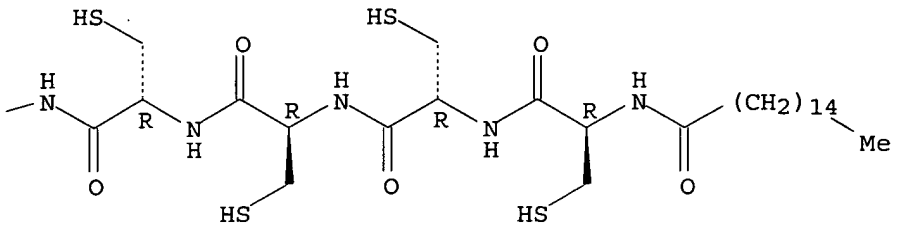
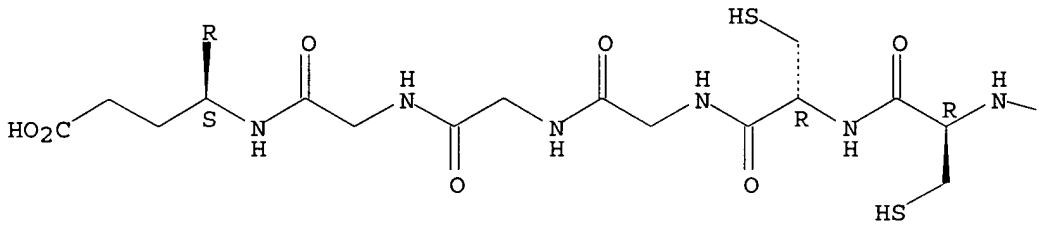
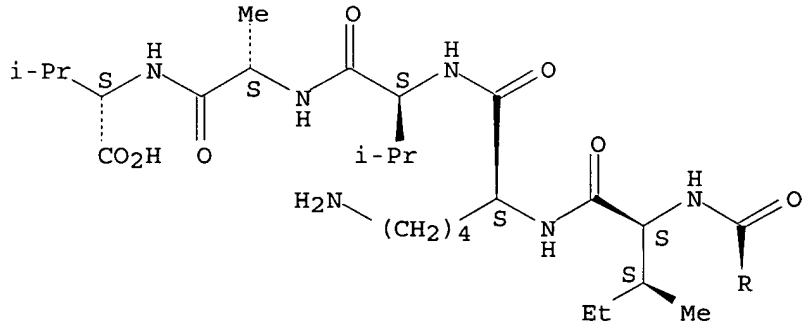


RN 438533-88-1 CAPLUS
CN L-Valine, N-(1-oxohexadecyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-cysteinylglycylglycylglycyl-L-α-glutamyl-L-isoleucyl-L-lysyl-L-valyl-L-alanyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A





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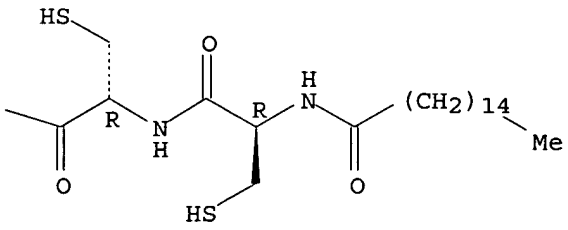
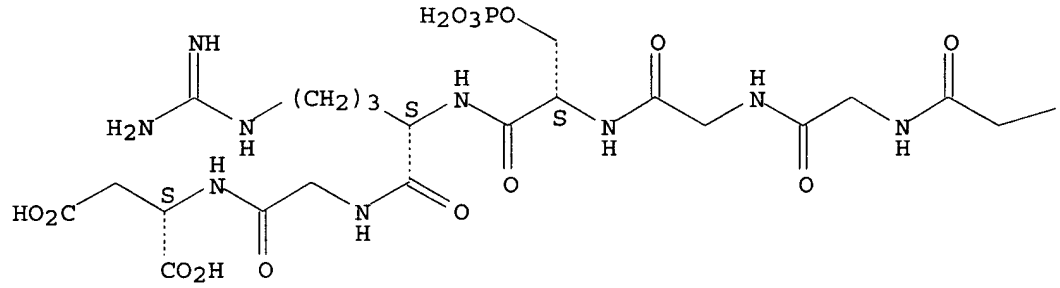


RN 586415-16-9 CAPLUS

CN L-Aspartic acid, N-(1-oxodecyl)glycylglycylglycyl-O-phosphono-L-seryl-L-arginylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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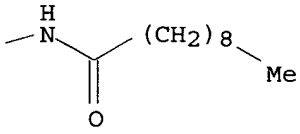
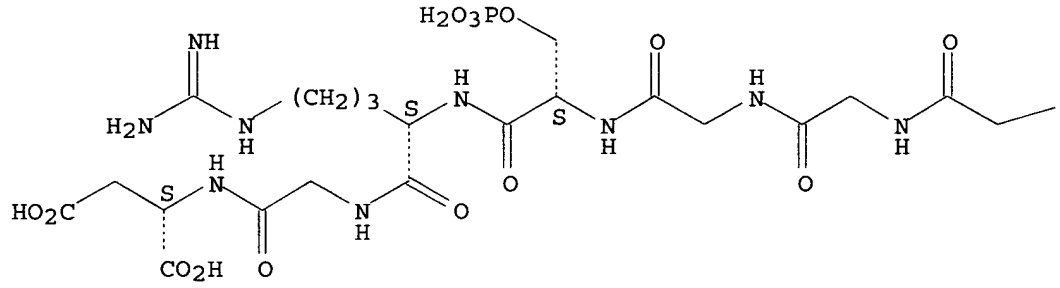


RN 586415-17-0 CAPLUS

CN L-Aspartic acid, N-(1-oxohexadecyl)glycylglycylglycyl-O-phosphono-L-seryl-L-arginylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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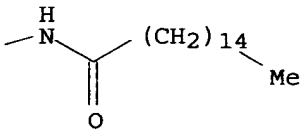
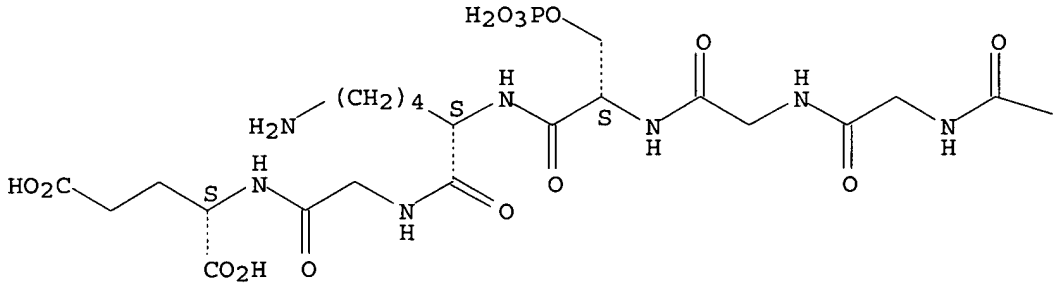


RN 586415-18-1 CAPLUS
CN L-Glutamic acid, N-(1-oxodecyl)-L-alanyl-L-alanyl-L-alanyl-L-alanylglycylglycylglycyl-O-phosphono-L-seryl-L-lysylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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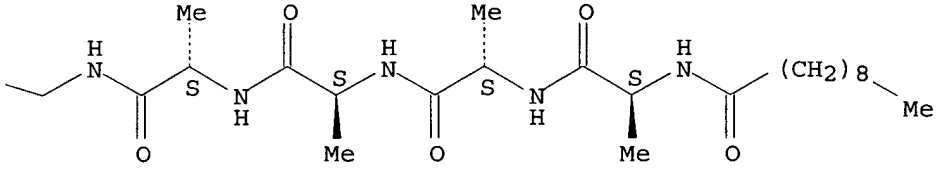
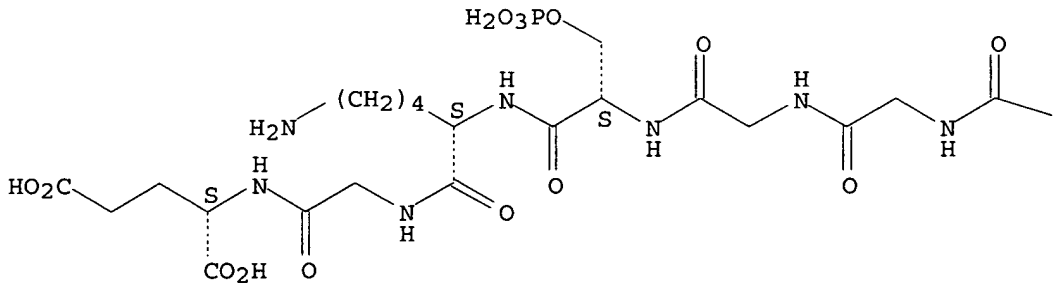


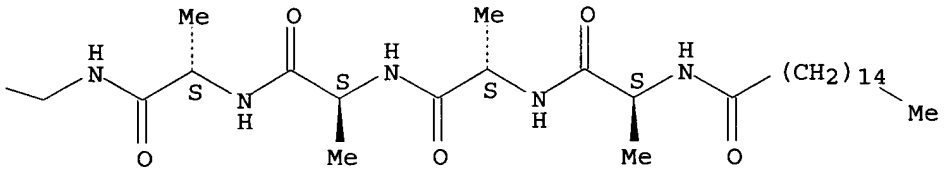
RN 586415-19-2 CAPLUS
CN L-Glutamic acid, N-(1-oxohexadecyl)-L-alanyl-L-alanyl-L-alanyl-L-alanylglycylglycylglycyl-O-phosphono-L-seryl-L-lysylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



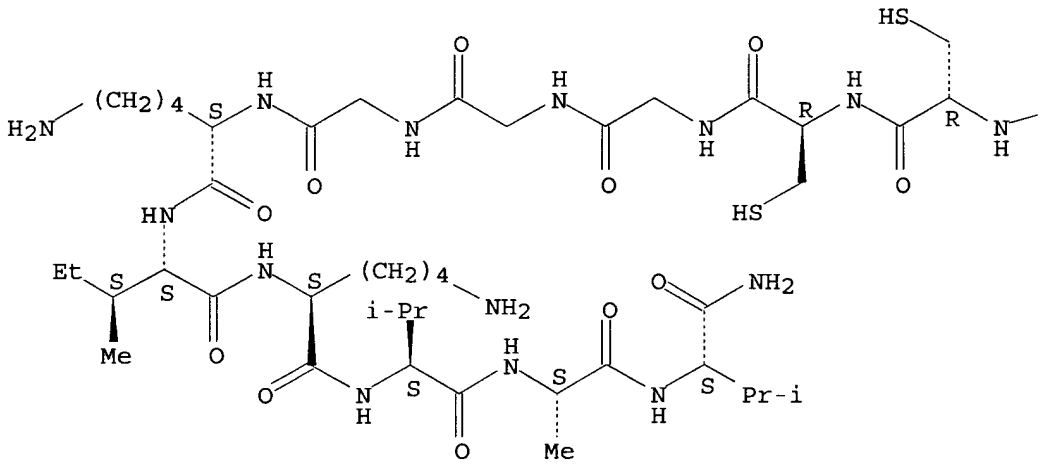
PAGE 1-B



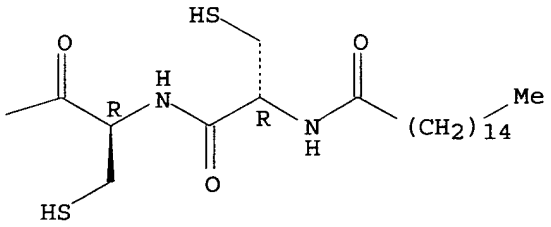
RN 586415-20-5 CAPLUS
CN L-Valinamide, N-(1-oxohexadecyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-cysteinylglycylglycylglycyl-L-lysyl-L-isoleucyl-L-lysyl-L-valyl-L-alanyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



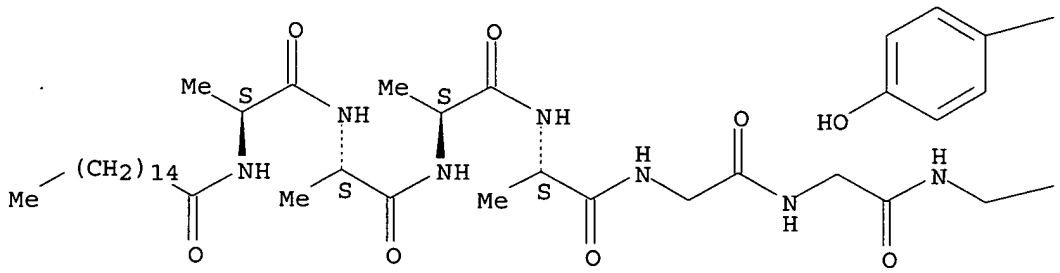
PAGE 1-B



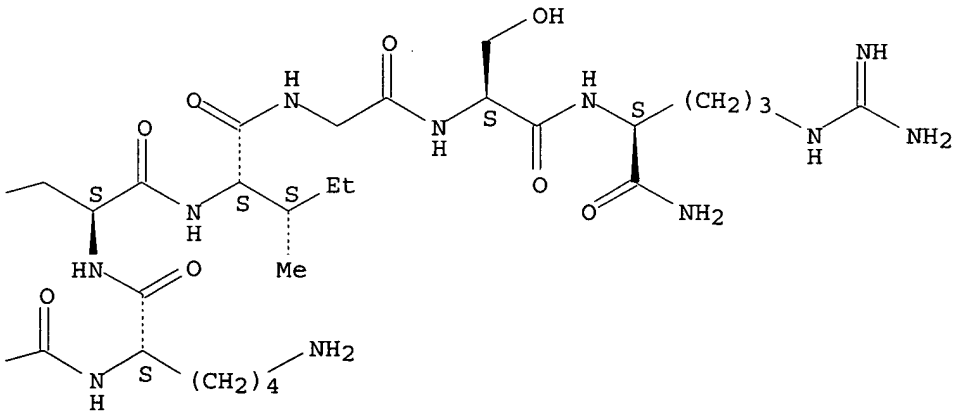
RN 586415-21-6 CAPLUS
CN L-Argininamide, N-(1-oxohexadecyl)-L-alanyl-L-alanyl-L-alanyl-L-alanylglycylglycylglycyl-L-lysyl-L-tyrosyl-L-isoleucylglycyl-L-seryl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



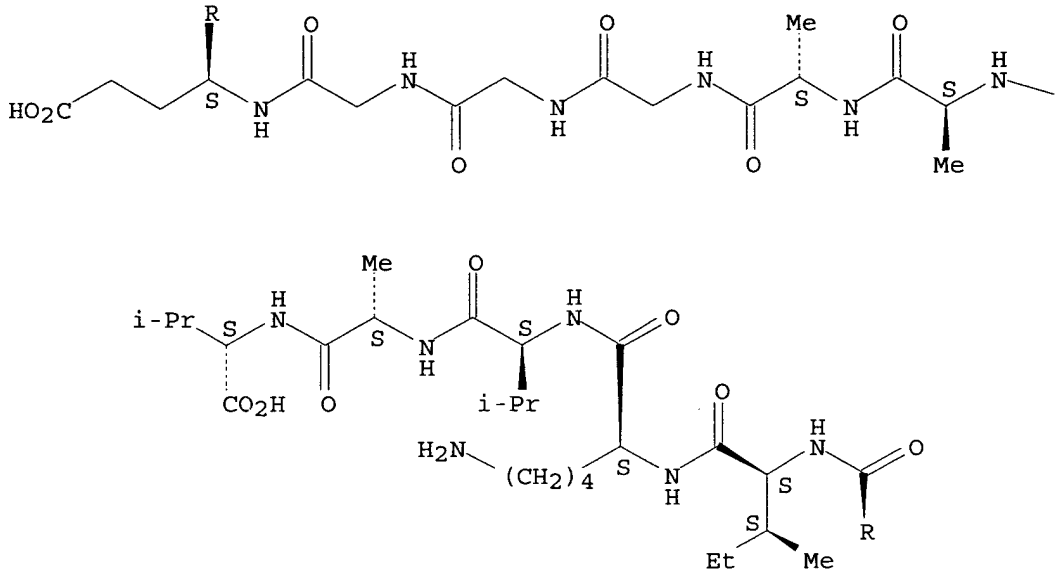
PAGE 1-B



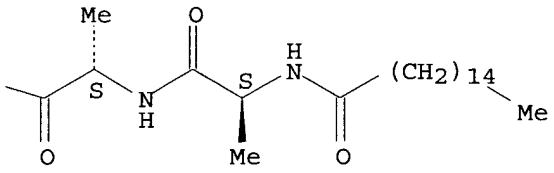
RN 586415-22-7 CAPLUS
CN L-Valine, N-(1-oxohexadecyl)-L-alanyl-L-alanyl-L-alanyl-L-alanylglycylglycylglycyl-L-α-glutamyl-L-isoleucyl-L-lysyl-L-valyl-L-alanyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



L138 ANSWER 19 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:511458 CAPLUS
DOCUMENT NUMBER: 139:81652
TITLE: Self-assembly and mineralization of peptide-amphiphile nanofibers
INVENTOR(S): **Stupp, Samuel I.**; Hartgerink, Jeffrey D.; Beniash, Elia
PATENT ASSIGNEE(S): Northwestern University, USA
SOURCE: PCT Int. Appl., 34 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

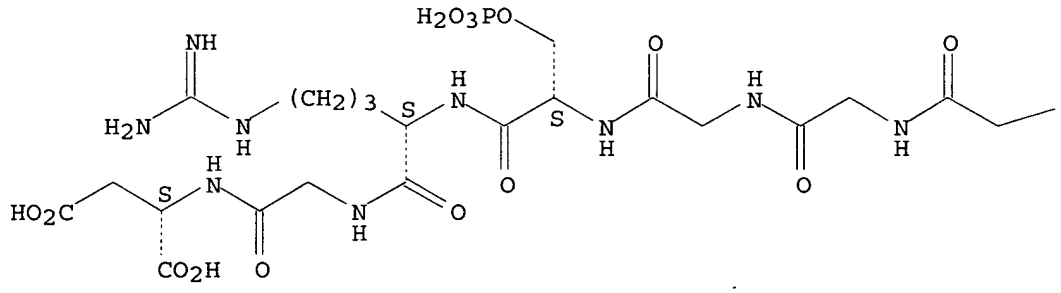
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003054146	A2	20030703	WO 2002-US36486	20021114
WO 2003054146	A3	20040401		

W: AU, CA, CN, JP
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT,

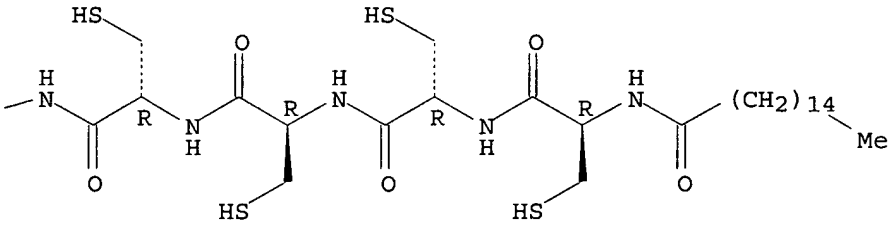
LU, MC, NL, PT, SE, SK, TR
US 2004018961 A1 20040129 US 2002-294114 20021114
PRIORITY APPLN. INFO.: US 2001-333074P P 20011114
ED Entered STN: 04 Jul 2003
AB Peptide-amphiphilic compns. capable of self-assembly into useful nanostructures.
IC ICM C12N
CC 9-16 (Biochemical Methods)
Section cross-reference(s): 63
IT 131167-89-0P **393876-34-1P**
RL: BSU (Biological study, unclassified); PRP (Properties); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(self-assembly and mineralization of peptide-amphiphile nanofibers)
IT **393876-34-1P**
RL: BSU (Biological study, unclassified); PRP (Properties); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(self-assembly and mineralization of peptide-amphiphile nanofibers)
RN 393876-34-1 CAPLUS
CN L-Aspartic acid, N-(1-oxohexadecyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-cysteinylglycylglycylglycyl-O-phosphono-L-seryl-L-arginylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



L138 ANSWER 20 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:186808 CAPLUS
TITLE: Self-assembling **peptide amphiphile** nanofiber networks for insuloma culture
AUTHOR(S): Stendahl, John C.; Chen, Xioajuan; **Niece, Krista L.**; Baker, Marshall S.; Kaufman, Dixon B.; **Stupp, Samuel I.**
CORPORATE SOURCE: Department of Materials Science and Engineering, Northwestern University, Evanston, IL, 60208, USA

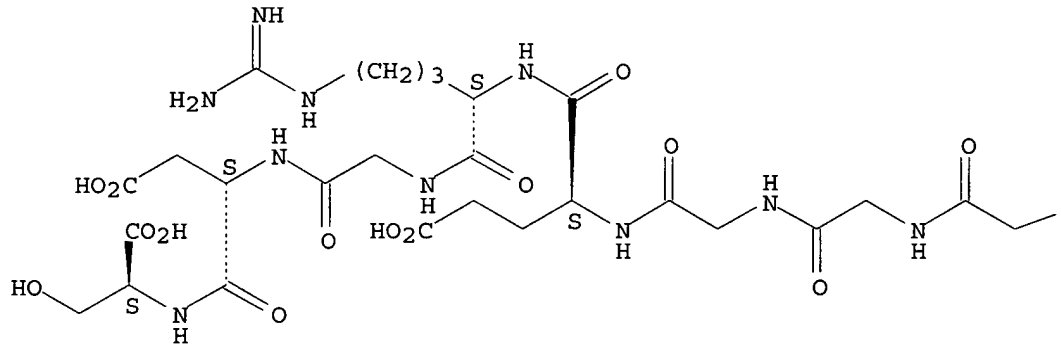
SOURCE: Abstracts of Papers, 225th ACS National Meeting, New Orleans, LA, United States, March 23-27, 2003 (2003), POLY-656. American Chemical Society: Washington, D. C.
CODEN: 69DSA4
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
ED Entered STN: 11 Mar 2003
AB Aqueous solns. of 1% peptide amphiphiles (PA) containing **alkyl tails** and hydrophilic peptide segments self assemble into gel-forming networks of well-defined nanofibers that can be molecularly tailored for bioactivity and mech. behavior. We used gels of nanofibers displaying the RGD adhesion epitope to encapsulate MIN6 cells, a pancreatic β-cell line. Unlike rigid or denser scaffolds, PA gels allow MIN6 sufficient mobility to aggregate. These features encourage integrin-mediated adhesion and gap-junctional coupling, both critical requisites for physiol. insulin secretion. Furthermore, unlike most polymer hydrogels, PA gelation is not dependent on calcium, a known inhibitor of insulin secretion. MIN6 proliferate within PA networks and are spherical, resembling native β-cells- much unlike the flat, spreading morphologies observed on 2D tissue culture polystyrene. Preliminary data indicate that PA encapsulation increases MIN6 insulin secretion in response to glucose challenge, a property that may ultimately improve cell-based transplant therapies to treat Type I diabetes.

L138 ANSWER 21 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:211034 CAPLUS
DOCUMENT NUMBER: 139:312284
TITLE: Self assembling **peptide amphiphile** nanofiber networks for insuloma culture
AUTHOR(S): Stendahl, John C.; Chen, Xiaojuan; **Niece, Krista L.**; Baker, Marshall S.; Kaufman, Dixon B.; **Stupp, Samuel I.**
CORPORATE SOURCE: Department of Materials Science and Engineering, Northwestern University, Evanston, IL, 60208, USA
SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2003), 44(1), 634-635
CODEN: ACPPAY; ISSN: 0032-3934
PUBLISHER: American Chemical Society, Division of Polymer Chemistry
DOCUMENT TYPE: Journal; (computer optical disk)
LANGUAGE: English
ED Entered STN: 18 Mar 2003
AB Peptide amphiphile (PA) mols. have the ability to self assemble into gel-forming networks of biol. functional nanofibers. These nanofiber gels offer chemical ideal environments for the encapsulation of MIN6 cells, which displayed spherical morphologies and tend to form multicellular spherical aggregates, qualities associated with optimal MIN6 function but not observed in cultures on rigid, two-dimensional surfaces. PA nanofiber networks are superior to alginate for MIN6 encapsulation since they present the RGD adhesion epitope and do not require Ca2+ for gelation. These features engineered into the supramol. gels are responsible for the increased glucose stimulated insulin secretion of MIN6 encapsulated in the nanofiber networks. These results demonstrated that PA encapsulation of MIN6 could improve the efficiency of cell-based transplant therapies to treat type I diabetes. Encapsulation in PA nanofiber networks could improve the problems of cell death and nanoperformance.
CC 63-7 (Pharmaceuticals)
ST **peptide amphiphile** self assembly transplant antidiabetic

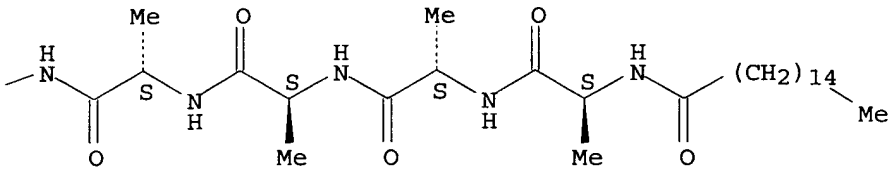
IT Transplant and Transplantation
(pancreas; self assembling **peptide amphiphile** nanofiber networks for insuloma culture)
IT Animal tissue culture
Antidiabetic agents
Gelation
Self-assembly
(self assembling **peptide amphiphile** nanofiber networks for insuloma culture)
IT Pancreas
(transplant; self assembling **peptide amphiphile** nanofiber networks for insuloma culture)
IT 50-99-7, D-Glucose, biological studies 9004-10-8, Insulin, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(self assembling **peptide amphiphile** nanofiber networks for insuloma culture)
IT **610303-95-2 610303-96-3**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(self assembling **peptide amphiphile** nanofiber networks for insuloma culture)
IT **610303-95-2 610303-96-3**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(self assembling **peptide amphiphile** nanofiber networks for insuloma culture)
RN 610303-95-2 CAPLUS
CN L-Serine, N-(1-oxohexadecyl)-L-alanyl-L-alanyl-L-alanyl-L-alanylglycylglycylglycyl-L-α-glutamyl-L-arginylglycyl-L-α-aspartyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



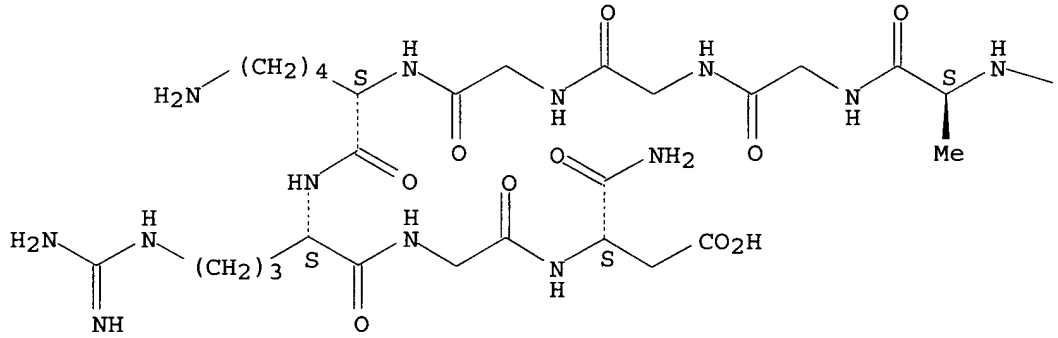
PAGE 1-B



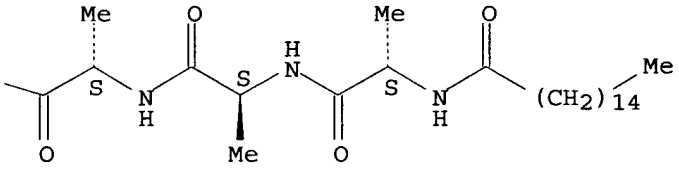
RN 610303-96-3 CAPLUS
CN L-α-Asparagine, N-(1-oxohexadecyl)-L-alanyl-L-alanyl-L-alanyl-L-alanylglycylglycylglycyl-L-lysyl-L-arginylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L138 ANSWER 22 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:316579 CAPLUS
DOCUMENT NUMBER: 137:43825
TITLE: **Peptide-amphiphile** nanofibers: a versatile scaffold for the preparation of self-assembling materials
AUTHOR(S): Hartgerink, Jeffrey D.; Beniash, Elia; **Stupp, Samuel I.**
CORPORATE SOURCE: Departments of Chemistry and Materials Science and Engineering and the Medical School, Northwestern

University, Evanston, IL, 60208, USA
SOURCE: Proceedings of the National Academy of Sciences of the United States of America (2002), 99(8), 5133-5138
CODEN: PNASA6; ISSN: 0027-8424
PUBLISHER: National Academy of Sciences
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 28 Apr 2002

AB Twelve derivs. of peptide-amphiphile mols., designed to self-assemble into nanofibers, are described. The scope of amino acid selection and **alkyl tail** modification in the peptide-amphiphile mols. are investigated, yielding nanofibers varying in morphol., surface chemical, and potential bioactivity. The results demonstrate the chemical versatile nature of this supramol. system and its high potential for manufacturing nanomaterials. In addition, three different modes of self-assembly resulting in nanofibers are described, including pH control, divalent ion induction, and concentration

CC 9-16 (Biochemical Methods)
Section cross-reference(s): 6

ST **peptide amphiphile** nanofiber scaffold self assembly

IT **Amphiphiles**
Molecular association
Molecular orientation
Molecular structure
Nanofibers
Self-assembly
Supramolecular structure
Transmission electron microscopy
(**peptide-amphiphile** nanofibers: a versatile scaffold for preparation of self-assembling materials)

IT **Peptides**, analysis
RL: ARU (Analytical role, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); ANST (Analytical study); PROC (Process)
(**peptide-amphiphile** nanofibers: a versatile scaffold for preparation of self-assembling materials)

IT 12067-99-1, Phosphotungstic acid
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(**peptide-amphiphile** nanofibers: a versatile scaffold for preparation of self-assembling materials)

IT **393876-34-1** 438533-78-9 438533-79-0 **438533-80-3**
438533-81-4 438533-82-5 438533-83-6
438533-84-7 438533-85-8 438533-86-9
438533-87-0 438533-88-1
RL: ARU (Analytical role, unclassified); DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); ANST (Analytical study); PROC (Process); USES (Uses)
(**peptide-amphiphile** nanofibers: a versatile scaffold for preparation of self-assembling materials)

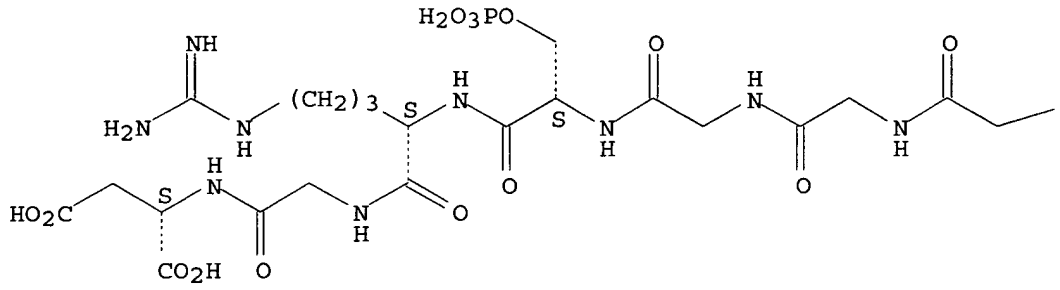
IT **393876-34-1 438533-80-3 438533-81-4**
438533-82-5 438533-83-6 438533-84-7
438533-85-8 438533-86-9 438533-87-0
438533-88-1
RL: ARU (Analytical role, unclassified); DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); ANST (Analytical study); PROC (Process); USES (Uses)
(**peptide-amphiphile** nanofibers: a versatile scaffold for preparation of self-assembling materials)

RN 393876-34-1 CAPLUS
CN L-Aspartic acid, N-(1-oxohexadecyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-

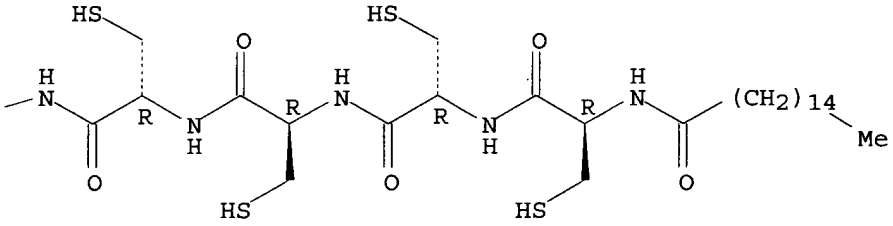
cysteinylglycylglycylglycyl-O-phosphono-L-seryl-L-arginylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



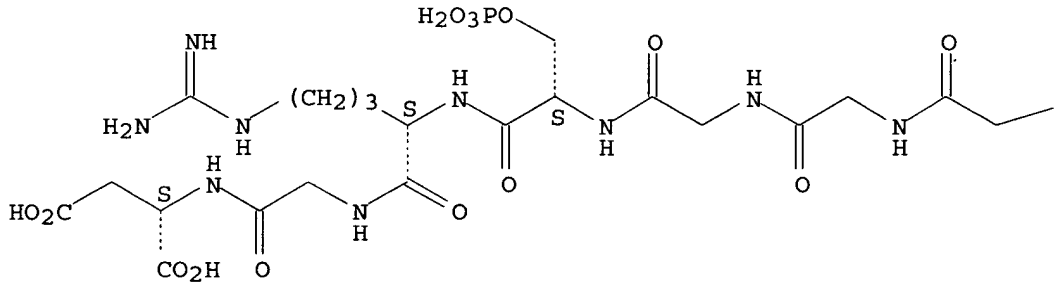
PAGE 1-B



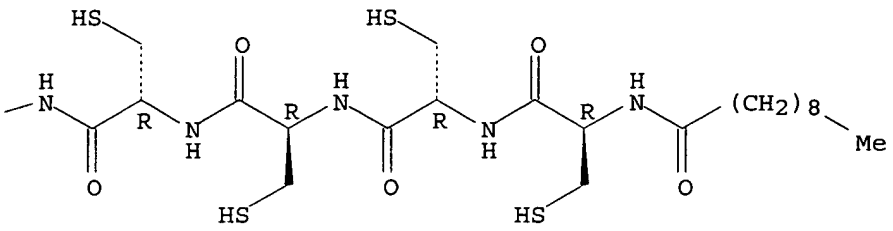
RN 438533-80-3 CAPLUS
CN L-Aspartic acid, N-(1-oxodecyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-cysteinylglycylglycylglycyl-O-phosphono-L-seryl-L-arginylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



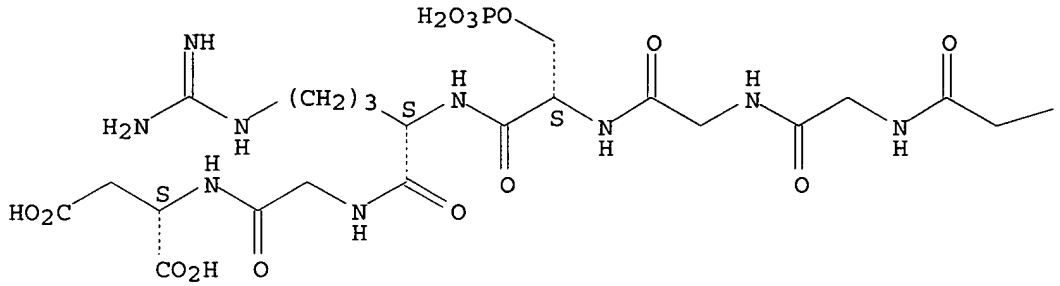
PAGE 1-B



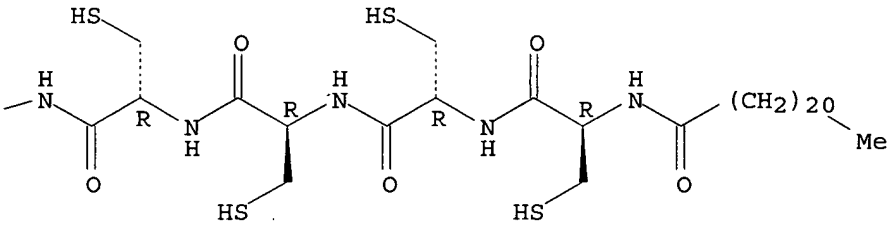
RN 438533-81-4 CAPLUS
CN L-Aspartic acid, N-(1-oxodocosyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-cysteinylglycylglycylglycyl-O-phosphono-L-seryl-L-arginylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



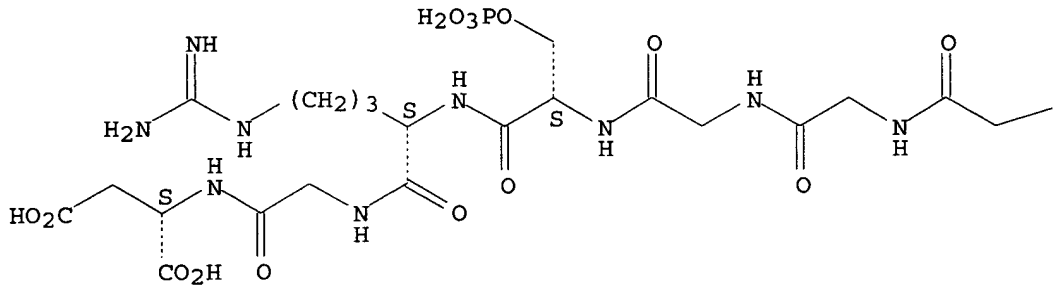
PAGE 1-B



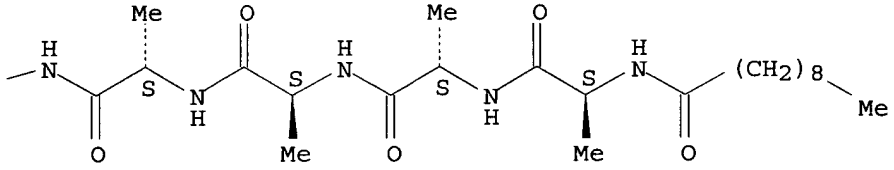
RN 438533-82-5 CAPLUS
CN L-Aspartic acid, N-(1-oxodecyl)-L-alanyl-L-alanyl-L-alanyl-L-alanylglycylglycylglycyl-O-phosphono-L-seryl-L-arginylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



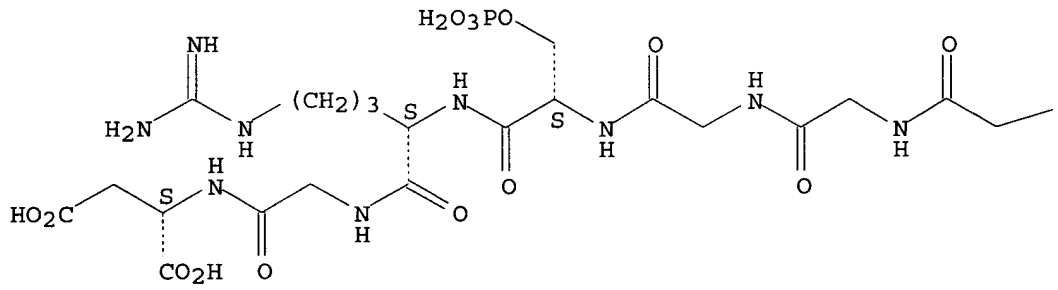
PAGE 1-B



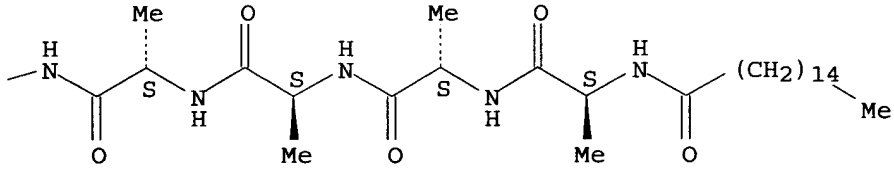
RN 438533-83-6 CAPLUS
CN L-Aspartic acid, N-(1-oxohexadecyl)-L-alanyl-L-alanyl-L-alanyl-L-alanylglycylglycylglycyl-O-phosphono-L-seryl-L-arginylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

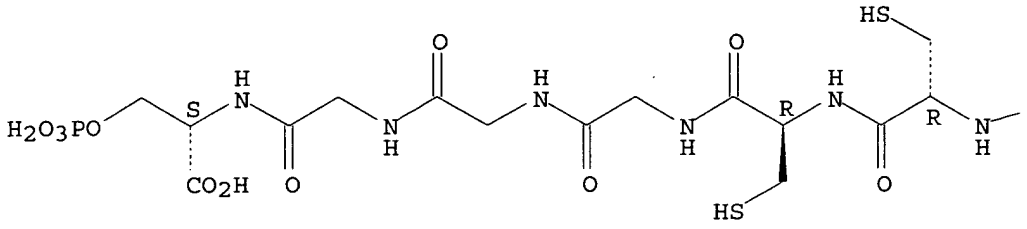


RN 438533-84-7 CAPLUS
CN L-Serine, N-(1-oxohexadecyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-

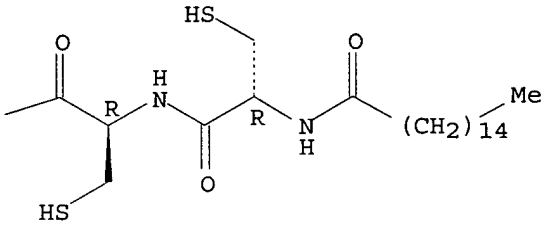
cysteinylglycylglycylglycyl-, 8-(dihydrogen phosphate) (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



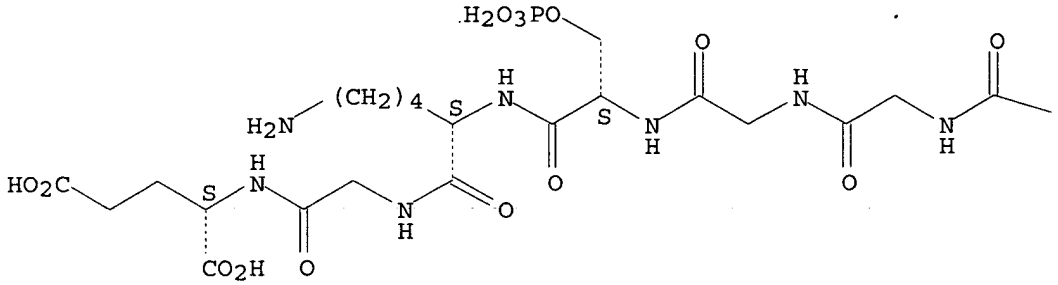
PAGE 1-B



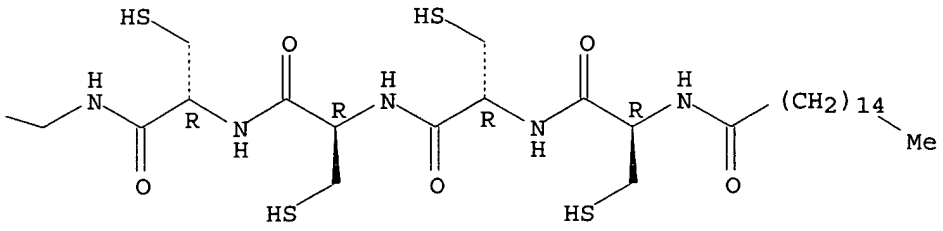
RN 438533-85-8 CAPLUS
CN L-Glutamic acid, N-(1-oxohexadecyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-cysteinylglycylglycylglycyl-O-phosphono-L-seryl-L-lysylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



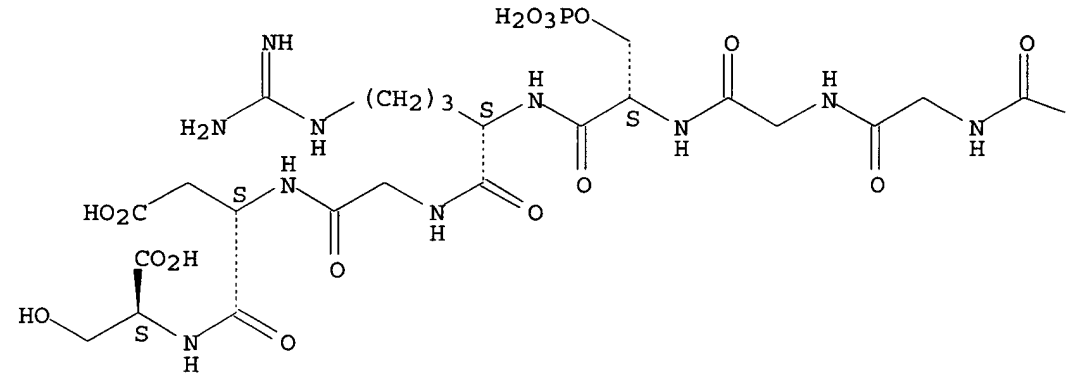
PAGE 1-B



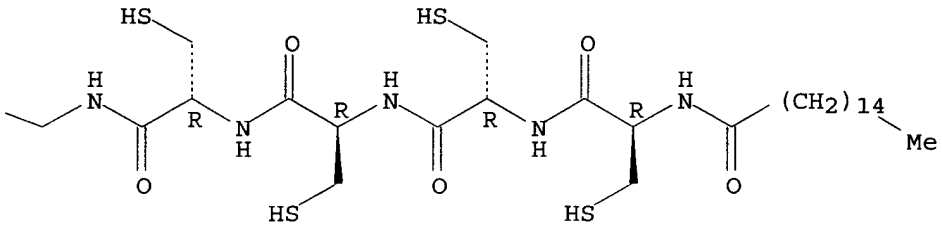
RN 438533-86-9 CAPLUS
CN L-Serine, N-(1-oxohexadecyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-cysteinylglycylglycylglycyl-O-phosphono-L-seryl-L-arginylglycyl-L-α-aspartyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



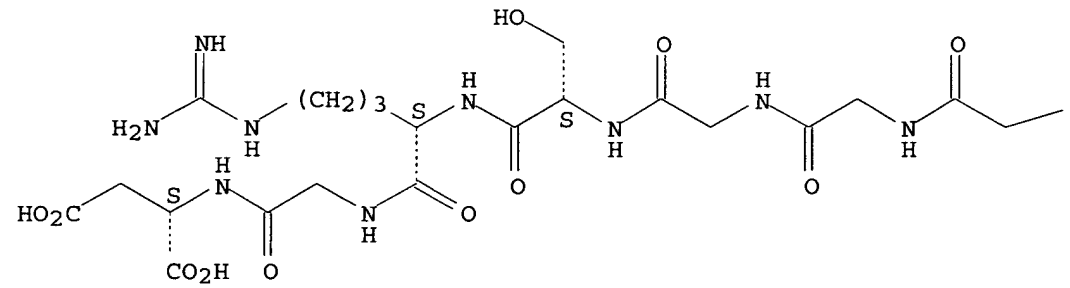
PAGE 1-B



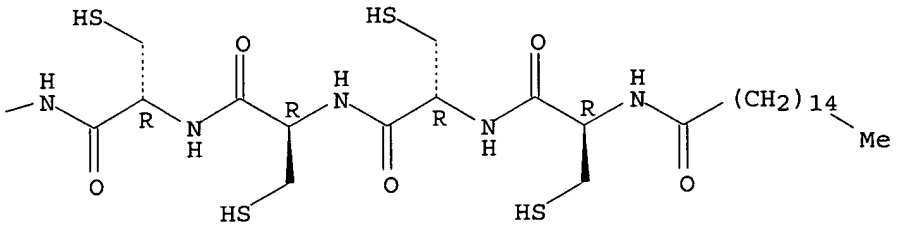
RN 438533-87-0 CAPLUS
CN L-Aspartic acid, N-(1-oxohexadecyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-cysteinylglycylglycylglycyl-L-seryl-L-arginylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



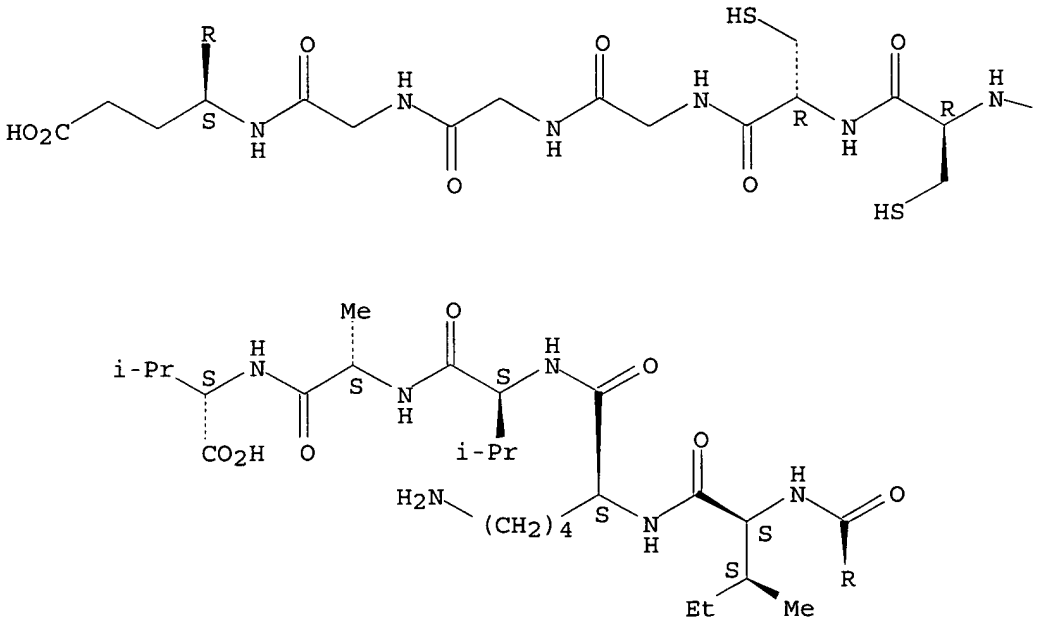
PAGE 1-B



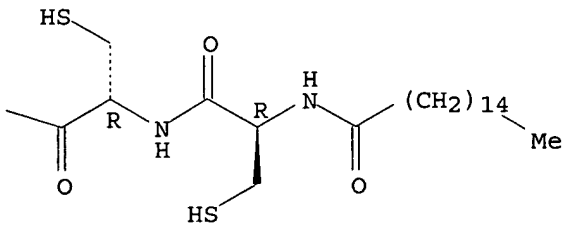
RN 438533-88-1 CAPLUS
CN L-Valine, N-(1-oxohexadecyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-cysteinylglycylglycylglycyl-L-α-glutamyl-L-isoleucyl-L-lysyl-L-valyl-L-alanyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



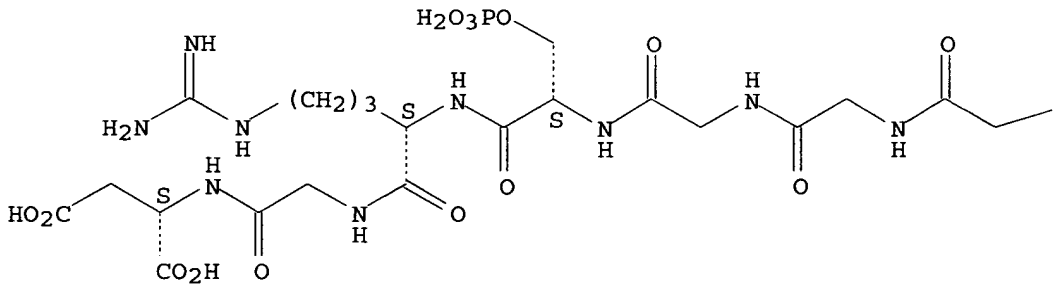
REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

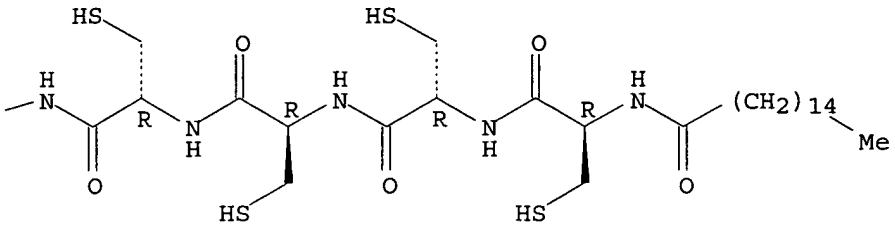
L138 ANSWER 23 OF 31 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:873993 CAPLUS
DOCUMENT NUMBER: 136:146749
TITLE: Self-assembly and mineralization of peptide-amphiphile nanofibers
AUTHOR(S): Hartgerink, Jeffrey D.; Beniash, Elia; **Stupp, Samuel I.**
CORPORATE SOURCE: Department of Materials Science and Engineering, Northwestern University, Evanston, IL, 60208, USA
SOURCE: Science (Washington, DC, United States) (2001), 294(5547), 1684-1688
CODEN: SCIEAS; ISSN: 0036-8075
PUBLISHER: American Association for the Advancement of Science
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 04 Dec 2001
AB We have used the pH-induced self-assembly of a peptide-amphiphile to make a nanostructured fibrous scaffold reminiscent of extracellular matrix. The design of this peptide-amphiphile allows the nanofibers to be reversibly crosslinked to enhance or decrease their structural integrity. After crosslinking, the fibers are able to direct mineralization of hydroxyapatite to form a composite material in which the crystallog. c axes of hydroxyapatite are aligned with the long axes of the fibers. This alignment is the same as that observed between collagen fibrils and hydroxyapatite crystals in bone.
CC 6-3 (General Biochemistry)
Section cross-reference(s): 36
IT **393876-34-1P**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(peptide-amphiphile; self-assembly and mineralization of peptide-amphiphile nanofibers)
IT **393876-34-1P**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(peptide-amphiphile; self-assembly and mineralization of peptide-amphiphile nanofibers)
RN 393876-34-1 CAPLUS
CN L-Aspartic acid, N-(1-oxohexadecyl)-L-cysteinyl-L-cysteinyl-L-cysteinyl-L-cysteinylglycylglycylglycyl-O-phosphono-L-seryl-L-arginylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L138 ANSWER 24 OF 31 PASCAL COPYRIGHT 2005 INIST-CNRS. ALL RIGHTS RESERVED. on STN

ACCESSION NUMBER: 2005-0070189 PASCAL

TITLE (IN ENGLISH): Selective differentiation of neural progenitor cells by high-epitope density nanofibers

AUTHOR: SILVA Gabriel A.; CZEISLER Catherine; **NIECE Krista L.**; BENIASH Elia; HARRINGTON Daniel A.; KESSLER John A.; **STUPP Samuel I.**

CORPORATE SOURCE: Institute for Bioengineering and Nanoscience in Advanced Medicine, Northwestern University, Chicago, IL 60611, United States; Department of Neurology, Northwestern University, Chicago, IL 60611, United States; Department of Materials Science and Engineering, Northwestern University, Chicago, IL 60611, United States; Department of Chemistry, Northwestern University, Chicago, IL 60611, United States

SOURCE: Science : (Washington, D.C.), (2004), 303(5662), 1352-1355, 55 refs.
ISSN: 0036-8075 CODEN: SCIEAS

DOCUMENT TYPE: Journal; General Review

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: United States

LANGUAGE: English

AVAILABILITY: INIST-6040, 354000113486390200

ABSTRACT: Neural progenitor cells were encapsulated in vitro within a three-dimensional network of nanofibers formed by self-assembly of peptide **amphiphile** molecules. The self-assembly is triggered by mixing cell suspensions in media with dilute aqueous solutions of the molecules, and cells survive the growth of the nanofibers around them. These nanofibers were designed to present to cells the neurite-promoting laminin epitope IKVAV at nearly van der Waals density. Relative to laminin or soluble peptide, the artificial nanofiber scaffold induced very rapid differentiation of cells into neurons, while discouraging the development of astrocytes. This rapid selective differentiation is linked to the amplification of bioactive epitope presentation to

cells by the nanofibers.
CLASSIFICATION CODE: 002A31D01G; Life sciences; Biological sciences; Biotechnology
215; Biotechnology
CONTROLLED TERM: Neuron; Progenitor cell; Encapsulation; Antigenic determinant; Selectivity; Cell differentiation

L138 ANSWER 25 OF 31 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2003:311073 BIOSIS
DOCUMENT NUMBER: PREV200300311073
TITLE: Peptide **amphiphile** nanofiber gels are effective substrates for the culture and transplantation of islet cells.
AUTHOR(S): Chen, Xiaojuan [Reprint Author]; Stendahl, John C. [Reprint Author]; Baker, Marshall S. [Reprint Author]; Zhang, Xiaomin [Reprint Author]; **Niece, Krista L.** [Reprint Author]; **Stupp, Samuel I.** [Reprint Author]; Kaufman, Dixon B. [Reprint Author]
CORPORATE SOURCE: Northwestern University, Chicago, IL, USA
SOURCE: Cell Transplantation, (2003) Vol. 12, No. 2, pp. 160. print.
Meeting Info.: 6th International Congress of the Cell Transplant Society. Atlanta, GA, USA. March 02-05, 2003. Cell Transplant Society.
ISSN: 0963-6897.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 2 Jul 2003
Last Updated on STN: 2 Jul 2003
CONCEPT CODE: General biology - Symposia, transactions and proceedings 00520
Cytology - Animal 02506
Pathology - Therapy 12512
Metabolism - Metabolic disorders 13020
Endocrine - General 17002
Endocrine - Pancreas 17008
Tissue culture, apparatus, methods and media 32500
INDEX TERMS: Major Concepts
Endocrine System (Chemical Coordination and Homeostasis); Equipment Apparatus Devices and Instrumentation; Methods and Techniques
INDEX TERMS: Parts, Structures, & Systems of Organisms
beta-cells: endocrine system, function, growth, transplanted, viability; islet cells: endocrine system
INDEX TERMS: Diseases
diabetes: endocrine disease/pancreas, metabolic disease, therapy
Diabetes Mellitus (MeSH)
INDEX TERMS: Methods & Equipment
cell culture: culturing techniques, laboratory techniques; islet transplantation: clinical techniques, therapeutic and prophylactic techniques; peptide **amphiphile** nanofiber gels: laboratory equipment
INDEX TERMS: Miscellaneous Descriptors
cell-cell interactions; cell-substrate interactions
ORGANISM: Classifier
Muridae 86375
Super Taxa

Searched by Barb O'Bryen, STIC 2-2518

Rodentia; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
MIN6 cell line (cell line): mouse pancreatic beta cells
mouse (common): strain-C57/B6
Taxa Notes
Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates

L138 ANSWER 26 OF 31 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2003:514759 BIOSIS
DOCUMENT NUMBER: PREV200300511902
TITLE: NANOENGINEERED PEPTIDE **AMPHIPHILE** NETWORK FOR PHOTORECEPTOR REPLACEMENT IN DEGENERATIVE RETINAL DISORDERS.
AUTHOR(S): Silva, G. A. [Reprint Author]; Kehl, K. L. [Reprint Author]; **Niece, K. L.**; **Stupp, S. I.**
CORPORATE SOURCE: Institute for Bioengineeirng and Nanoscience in Advanced Medicine (IBNAM), Northwestern University, Chicago, IL, USA
SOURCE: ARVO Annual Meeting Abstract Search and Program Planner, (2003) Vol. 2003, pp. Abstract No. 492. cd-rom.
Meeting Info.: Annual Meeting of the Association for Research in Vision and Ophthalmology. Fort Lauderdale, FL, USA. May 04-08, 2003. Association for Research in Vision and Ophthalmology.
DOCUMENT TYPE: Conference; (Meeting)
Conference; (Meeting Poster)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 5 Nov 2003
Last Updated on STN: 5 Nov 2003

ABSTRACT:Purpose: To characterize and investigate the potential of an in situ molecularly self-assembling peptide **amphiphile** (PA) network for the replacement of lost photoreceptors in degenerative retinal disorders. Methods: PA molecules were chemically synthesized with the molecular formula C16H31O-A4G3EIKVAV-COOH (peptide sequence shown in bold) expressing the neurite promoting laminin peptide sequence IKVAV. These molecules were designed to self-assemble into nanoscale fibers in the presence of monovalent and divalent cations at physiological concentrations, producing a network of nanofibers that yield a stable matrix with a gel-like consistency. A 1% PA solution was microinjected into the subretinal or vitreal space of anesthetized rats and imaged using stereo microscopy. In addition, primary retinal cultures were encapsulated in vitro in IKVAV-PA gels to assess their growth and differentiation within the gels. Results: IKVAV-PA solutions injected vitreally and subretinally gelled on the order of seconds, yielding mechanically stable and firm gels in situ. The gelation process did not adversely affect the geometry of the eye, even for large injected volumes, relative to the volume of a rat eye, of up to about 100 mul. Following differing periods of time in situ, the gels were able to be surgically extracted from the eye, retaining their mechanical structure and composition. Primary dissociated retinal cultures encapsulated in vitro in PA gels under physiological conditions survived and were observed to differentiate morphologically into different distinct cell types for extended periods of time. Conclusions: PA nanofiber networks were successfully injected and gelled in intra-ocular spaces. Mixed retinal cultures encapsulated in vitro in PA gels were able to survive and differentiate. This cell/substrate system can potentially be explored as a novel delivery system for transplanting photoreceptor and/or RPE cells aimed at replacing degenerated photoreceptors in retinal degenerative disorders such as Age Related Macular Degeneration (AMD) or Retinitis Pigmentosa (RP). In addition to the mechanical role played by the

PA gel, the nanofiber network expresses functional extracellular matrix (ECM) biochemical ligands, which may mimic ECM signaling cues and thus improve the clinical outcome of grafted cells for the treatment of degenerative retinal disorders.

CONCEPT CODE: General biology - Symposia, transactions and proceedings 00520
Cytology - Animal 02506
Anatomy and Histology - Surgery 11105
Pathology - Therapy 12512
Sense organs - Physiology and biochemistry 20004
Sense organs - Pathology 20006
Nervous system - Physiology and biochemistry 20504
Development and Embryology - Pathology 25503
Tissue culture, apparatus, methods and media 32500

INDEX TERMS: Major Concepts
Methods and Techniques; Sense Organs (Sensory Reception)

INDEX TERMS: Parts, Structures, & Systems of Organisms
RPE: sensory system, retinal pigment epithelial cells; eye: sensory system; macula: sensory system; neurite: nervous system; photoreceptor: sensory system; retina: sensory system, differentiation, growth; subretinal space: sensory system; vitreal space: sensory system

INDEX TERMS: Diseases
age-related macular degeneration: eye disease, surgery
Macular Degeneration (MeSH)

INDEX TERMS: Diseases
degenerative retinal disorder: eye disease

INDEX TERMS: Diseases
retinitis pigmentosa: congenital disease, eye disease, surgery
Retinitis Pigmentosa (MeSH)

INDEX TERMS: Chemicals & Biochemicals
KVAV: neurite promoting laminin peptide sequence I; divalent cation; monovalent cation

INDEX TERMS: Methods & Equipment
RPE transplantation [retinal pigment epithelial cell transplantation]: clinical techniques, therapeutic and prophylactic techniques; nanoengineered peptide **amphiphile** network: prosthetic; photoreceptor transplantation: clinical techniques, therapeutic and prophylactic techniques; primary culture: culturing techniques, laboratory techniques; stereo microscopy: imaging and microscopy techniques, laboratory techniques

ORGANISM: Classifier
Muridae 86375
Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
rat (common)
Taxa Notes
Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates

L138 ANSWER 27 OF 31 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN

ACCESSION NUMBER: 2003:424517 BIOSIS
DOCUMENT NUMBER: PREV200300424517
TITLE: Self assembling peptide **amphiphile** nanofiber networks for insuloma culture.
AUTHOR(S): Stendahl, John C. [Reprint Author]; Chen, Xioajuan;

Niece, Krista L. [Reprint Author]; Baker, Marshall S.; Kaufman, Dixon B.; **Stupp, Samuel I.**
CORPORATE SOURCE: Department of Materials Science and Engineering, Northwestern University, 2220 N. Campus Drive, Evanston, IL, 60208, USA
j-stendahl@northwestern.edu
SOURCE: Abstracts of Papers American Chemical Society, (2003) Vol. 225, No. 1-2, pp. POLY 656. print.
Meeting Info.: 225th American Chemical Society (ACS) National Meeting. New Orleans, LA, USA. March 23-27, 2003. American Chemical Society.
ISSN: 0065-7727 (ISSN print).
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 17 Sep 2003
Last Updated on STN: 17 Sep 2003
CONCEPT CODE: General biology - Symposia, transactions and proceedings 00520
Biophysics - Bioengineering 10511
INDEX TERMS: Major Concepts
Biomaterials; Methods and Techniques
INDEX TERMS: Methods & Equipment
insuloma culture: culturing techniques, laboratory techniques
INDEX TERMS: Miscellaneous Descriptors
peptide **amphiphile** nanofibers
ORGANISM: Classifier
Muridae 86375
Super Taxa
Rodentia; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
MIN6 cell line (cell line): mouse pancreatic beta cells
Taxa Notes
Animals, Chordates, Mammals, Nonhuman Vertebrates, Nonhuman Mammals, Rodents, Vertebrates

L138 ANSWER 28 OF 31 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 2003:380096 BIOSIS
DOCUMENT NUMBER: PREV200300380096
TITLE: DEVELOPMENT OF NEURAL PROGENITOR CELLS ENCAPSULATED IN A PEPTIDE **AMPHIPHILE** SUBSTRATE THAT IS INDUCED TO SELF - ASSEMBLE UNDER PHYSIOLOGICAL CONDITIONS.
AUTHOR(S): Silva, G. A. [Reprint Author]; Czeisler, C. [Reprint Author]; **Niece, K. L.** [Reprint Author]; Beniash, E. [Reprint Author]; Hartgerink, J. D. [Reprint Author]; Kessler, J. A. [Reprint Author]; **Stupp, S. I.** [Reprint Author]
CORPORATE SOURCE: Dept. of Materials Science and Engineering, Dept. of Chemistry, Dept. of Neurology, Institute for Bioengineering and Nanoscience in Advanced Medicine (IBNAM), Northwestern University, Chicago, IL, USA
SOURCE: Society for Neuroscience Abstract Viewer and Itinerary Planner, (2002) Vol. 2002, pp. Abstract No. 825.4. http://sfn.scholarone.com. cd-rom.
Meeting Info.: 32nd Annual Meeting of the Society for Neuroscience. Orlando, Florida, USA. November 02-07, 2002. Society for Neuroscience.
DOCUMENT TYPE: Conference; (Meeting)

Conference; (Meeting Poster)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 20 Aug 2003
Last Updated on STN: 20 Aug 2003
ABSTRACT:Self-assembling nano-scale systems can interact with cellular and physiological systems at a molecular level, and hence have a tremendous potential to improve the integration between biology and artificial technologies. We have developed a novel substrate composed of peptide ***amphiphile*** (PA) molecules that express different functional peptide sequences and self-assemble into nano-scale fibers that induce gelation of their aqueous environment under physiological conditions, in this case, by the cell culture media of neural progenitor cell neurosphere preparations. This resulted in the encapsulation of dissociated neural progenitor cells and un-dissociated neurospheres within the PA substrate. Cells encapsulated in PA gels expressing the functional laminin peptide sequence IKVAV (1% PA molecules in dH2O) differentiated into both GFAP and beta-tubulin positive astrocyte and neuron populations, respectively. As early as 24 hrs. after plating, progenitor cells grown in the PA gels underwent significant adhesion and morphological differentiation, including substantial neurite growth and obvious synapse and network formation comparable if not better than polylysine controls. Cell survival far exceeded cell death as demonstrated by a fluorescent cell viability/cytotoxicity assay. The PA gels mimic some of the properties of extracellular matrix, and may potentially be used to promote CNS regeneration.
CONCEPT CODE: General biology - Symposia, transactions and proceedings 00520
Cytology - Animal 02506
Biochemistry studies - Proteins, peptides and amino acids 10064
Nervous system - Physiology and biochemistry 20504
Development and Embryology - General and descriptive 25502
INDEX TERMS: Major Concepts
Nervous System (Neural Coordination)
INDEX TERMS: Parts, Structures, & Systems of Organisms
astrocyte: nervous system; neural progenitor cell: embryonic structure, nervous system; neurite: nervous system; neuron: nervous system
INDEX TERMS: Chemicals & Biochemicals
GFAP; beta-tubulin; laminin peptide; peptide **amphiphile** substrate: expression; polylysine
INDEX TERMS: Miscellaneous Descriptors
physiological condition
REGISTRY NUMBER: 25104-18-1Q (polylysine)
38000-06-5Q (polylysine)

L138 ANSWER 29 OF 31 DISSABS COPYRIGHT (C) 2005 ProQuest Information and Learning Company; All Rights Reserved on STN
ACCESSION NUMBER: 2005:39510 DISSABS Order Number: AAI3156650
TITLE: Cellular interactions with bio-inspired, nanoscale inorganic and organic materials for human repair
AUTHOR: Storrie, Hannah [Ph.D.]; **Stupp, Samuel I. [advisor]**
CORPORATE SOURCE: Northwestern University (0163)
SOURCE: Dissertation Abstracts International, (2004) Vol. 65, No. 12B, p. 6372. Order No.: AAI3156650. 192 pages.
ISBN: 0-496-17397-9.
DOCUMENT TYPE: Dissertation
FILE SEGMENT: DAI
LANGUAGE: English

ENTRY DATE: Entered STN: 20050826
Last Updated on STN: 20050826

ABSTRACT: This dissertation describes the use of engineered, nanoscale materials for human repair. Three different systems are discussed, one based on inorganic coatings for titanium substrates to be used for bone regeneration, and two based on self-assembling peptide **amphiphile** nanofibers that resemble the extra-cellular matrix. By controlling the chemistry and materials properties of the materials, specific cellular responses can be observed.

Organoapatite, a ceramic material containing hydroxyapatite, the mineral from which bone and teeth are make, and a small amount of poly(amino acids) has been chemically modified to adsorb zinc ions onto its surface. Zinc is an essential trace element found in bone and can stimulate biomineralization both in vitro and in vivo. When coated onto a titanium substrate via an electrostatic pretreatment, the new material, zinc-containing organoapatite (ZnOA), forms a porous, nanocrystalline material capable of delivering zinc ions to cells for biomineralization. In vitro studies of osteoblastic cells cultured on ZnOA coated titanium meshes in a rotating bioreactor show that ZnOA coatings promote the earlier onset of alkaline phosphatase (ALP) activity and the production of mineralized bone nodules as compared to controls.

Peptide **amphiphile** (PA) molecules containing a hydrophilic bioactive peptide head-group coupled to a hydrophobic alkyl tail that self-assemble to form nanofibers displaying the peptide head-group on the fiber have been studied as artificial extra cellular matrices. In one series of studies, the integrin-based adhesion of fibroblastic cells and the migration of highly invasive breast cancer cells on PA nanofibers containing the cell adhesion sequence RGDS was shown to be dependent on the architecture of the PA molecule. In another series of studies, PA's designed to mimic the active site of ALP displayed metal-dependent self-assembly, as well as specific binding of zinc ions to histidine residues in the PA and promoted the proliferation and biomineralization of osteoblastic cells.

CLASSIFICATION: 0487 CHEMISTRY, BIOCHEMISTRY; 0541 **ENGINEERING, BIOMEDICAL**; 0379 BIOLOGY, CELL

L138 ANSWER 30 OF 31 DISSABS COPYRIGHT (C) 2005 ProQuest Information and Learning Company; All Rights Reserved on STN

ACCESSION NUMBER: 2005:3455 DISSABS Order Number: AAI3132534
TITLE: Applications of molecular self-assembly in tissue engineering
AUTHOR: Harrington, Daniel Anton [Ph.D.]; **Stupp, Samuel I. [advisor]**
CORPORATE SOURCE: Northwestern University (0163)
SOURCE: Dissertation Abstracts International, (2004) Vol. 65, No. 5B, p. 2575. Order No.: AAI3132534. 201 pages.
DOCUMENT TYPE: Dissertation
FILE SEGMENT: DAI
LANGUAGE: English
ENTRY DATE: Entered STN: 20050128
Last Updated on STN: 20050128

ABSTRACT: This thesis studied the application of three

self-assembling molecular systems, as potential biomaterials for tissue engineering applications. Cholesteryl-(L-lactic acid)n molecules form thermotropic liquid crystals, which could be coated onto the inner and outer pores of biodegradable PLLA scaffolds, while retaining the lamellar order of the neat material. Primary bovine chondrocytes were cultured on these structures, demonstrating improved attachment and extended retention of phenotype on the C-LA-coated scaffolds. No difference in fibronectin adsorption to C-LA and PLLA surfaces was observed, suggesting a strong role for cholesterol in influencing cell phenotype. A family of peptide-**amphiphiles**, bearing the "RGD" adhesion sequence from fibronectin, was also assessed in the contexts of cartilage and bladder repair. These molecules self-assemble into one-dimensional fibers, with diameters of 6-8 nm, and lengths of 500 nm or greater. Chondrocytes were seeded and cultured on covalently-crosslinked PA gels and embedded within calcium-triggered PA gels. Cells became dormant over time, but remained viable, suggesting an inappropriate display of the adhesion sequence to cells. A family of "branched" PA molecules with lysine dendron headgroups was designed, in an effort to increase the spatial separation between molecules in the assembled state, and to theoretically improve epitope accessibility. These molecules coated reliably onto PGA fiber scaffolds, and dramatically increased the attachment of human bladder smooth muscle cells, possibly through better epitope display or electrostatic attraction. They also formed strong gels with several negatively-charged biologically-relevant macromolecules. In a third system, **amphiphilic** segmented dendrimers based on phenylene vinylene and L-lysine entered cells through an endocytic pathway with no discernible toxic effect on cell proliferation or morphology. These **amphiphiles** formed complex aggregates in aqueous solution, likely an equilibrium state of micelles (5-10 nm) and vesicles (25-35 nm). A pyrene analogue was shown to lyse cells, which correlated with the molecule's reduced propensity to form strong aggregates in aqueous solution. Other amino acid segments were substituted for L-lysine, and only those **amphiphiles** with basic residues were efficiently taken in by cells. For all three self-assembling systems, their nanoscale organization and their interaction with biological systems were directly related to the chemical nature of their constituent building blocks.

CLASSIFICATION: 0794 ENGINEERING, MATERIALS SCIENCE; 0541 **ENGINEERING, BIOMEDICAL**

L138 ANSWER 31 OF 31 DISSABS COPYRIGHT (C) 2005 ProQuest Information and Learning Company; All Rights Reserved on STN

ACCESSION NUMBER: 2004:52376 DISSABS Order Number: AAI3118616
TITLE: Biomaterial systems for orthopedic tissue engineering
AUTHOR: **Spoerke, Erik David [Ph.D.]**; Stupp, Samuel I. [advisor]
CORPORATE SOURCE: Northwestern University (0163)
SOURCE: Dissertation Abstracts International, (2003) Vol. 65, No. 1B, p. 399. Order No.: AAI3118616. 209 pages.
DOCUMENT TYPE: Dissertation
FILE SEGMENT: DAI

LANGUAGE: English
ENTRY DATE: Entered STN: 20041004
Last Updated on STN: 20041004

ABSTRACT: The World Health Organization has estimated that one out of seven Americans suffers from a musculoskeletal impairment, annually incurring 28.6 million musculoskeletal injuries--more than half of all injuries. Bone tissue engineering has evolved rapidly to address this continued health concern. In the last decade, the focus of orthopedic biomaterials design has shifted from the use of common engineering metals and plastics to smart materials designed to mimic nature and elicit favorable bioresponse. Working within this new paradigm, this thesis explores unique chemical and materials systems for orthopedic tissue engineering.

Improving on current titanium implant technologies, porous titanium scaffolds were utilized to better approximate the mechanical and structural properties of natural bone. These foam scaffolds were enhanced with bioactive coatings, designed to enhance osteoblastic implant colonization. The biopolymer poly(L-lysine) was incorporated into both hydroxypatite and octacalcium phosphate mineral phases to create modified organoapatite and pLys-CP coatings respectively. These coatings were synthesized and characterized on titanium surfaces, including porous structures such as titanium mesh and titanium foam. In addition, in vitro osteoblastic cell culture experiments probed the biological influences of these coatings.

Organoapatite (OA) accelerated preosteoblastic colonization of titanium mesh and improved cellular ingrowth into titanium foam. Alternatively, the thin, uniform pLys-CP coating demonstrated significant potential as a substrate for chemically binding biological molecules and supramolecular assemblies. Biologically, pLys-CP demonstrated enhanced cellular attachment over titanium and inorganic calcium phosphate controls.

Supramolecular self-assembled nanofiber assemblies were also explored both as stand-alone tissue engineering gels and as titanium coatings. Self-supporting nanofiber gels induced accelerated, biomimetic mineralization. Osteoblasts encapsulated in mineralizing gels became dormant, down-regulating glucose-lactate metabolism, cell proliferation, and alkaline phosphatase expression. Still viable, though, these cells up-regulated cell proliferation and alkaline phosphatase expression upon release from the gel. These self-assembled nanofibers were also applied to titanium surfaces, where they influenced calcium phosphate nucleation and growth on those surfaces.

Each of these materials systems is the product of a valuable integration of materials science, chemistry, and medicine. By creatively combining elements of these different disciplines, it is possible to design new and exciting approaches to orthopedic tissue engineering.

CLASSIFICATION: 0794 ENGINEERING, MATERIALS SCIENCE; 0541 ENGINEERING, BIOMEDICAL

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FILE LAST UPDATED: 11 Oct 2005  (20051011/ED)

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L39 9 SEA FILE=CAPLUS ABB=ON (L13 OR (L16 AND L18)) AND L14 AND L38

L40 8 SEA FILE=CAPLUS ABB=ON L39 NOT (NON-COVALENT?)/BI

=> s (l20 or l30 or l34 or l37 or l40) not l135 previously printed with inventor search

L139 17 (L20 OR L30 OR L34 OR L37 OR L40) NOT L135

=> fil JICST-EPLUS, PASCAL, BIOTECHNO, ESBIOBASE, BIOSIS, CONFSCI, LIFESCI, BIOTECHDS, CEABA-VTB, WPIDS

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L144 1 L60 NOT L136

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=> fil dissabs; d que l86; d que l95; d que l91

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L79          893 SEA FILE=DISSABS ABB=ON  CONICAL?
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L86            0 SEA FILE=DISSABS ABB=ON  L82 AND L79
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printed w. 7th inventor search

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EMBASE has been reloaded. Enter HELP RLOAD for details.

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L132      16739 SEA FILE=EMBASE ABB=ON  CONICAL? OR CONE#
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                OR L133)
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L141 6 L134 NOT L125 previously printed with inventor search

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FILE 'MEDLINE' ENTERED AT 15:29:18 ON 12 OCT 2005

FILE LAST UPDATED: 11 OCT 2005 (20051011/UP). FILE COVERS 1950 TO DATE.

On December 19, 2004, the 2005 MeSH terms were loaded.

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http://www.nlm.nih.gov/mesh/
http://www.nlm.nih.gov/pubs/techbull/nd04/nd04_mesh.html

OLDMEDLINE now back to 1950.

MEDLINE thesauri in the /CN, /CT, and /MN fields incorporate the MeSH 2005 vocabulary.

This file contains CAS Registry Numbers for easy and accurate substance identification.

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L113        128 SEA FILE=MEDLINE ABB=ON  L104 AND L107
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L113        128 SEA FILE=MEDLINE ABB=ON  L104 AND L107
L115         18 SEA FILE=MEDLINE ABB=ON  L104 AND L109
L119      70291 SEA FILE=MEDLINE ABB=ON  ASSEMB?
L120         11 SEA FILE=MEDLINE ABB=ON  (L112 OR L113 OR L115) AND L119


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PROCESSING COMPLETED FOR L142
PROCESSING COMPLETED FOR L139
PROCESSING COMPLETED FOR L143
PROCESSING COMPLETED FOR L144
PROCESSING COMPLETED FOR L145
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PROCESSING COMPLETED FOR L141
L146 57 DUP REM L142 L139 L143 L144 L145 L140 L141 (23 DUPLICATES REMOVED)
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ANSWERS '18-33' FROM FILE CAPLUS
ANSWER '34' FROM FILE JICST-EPLUS
ANSWERS '35-38' FROM FILE PASCAL
ANSWERS '39-40' FROM FILE BIOSIS
ANSWER '41' FROM FILE CEABA-VTB
ANSWERS '42-50' FROM FILE WPIDS
ANSWERS '51-55' FROM FILE DISSABS
ANSWERS '56-57' FROM FILE EMBASE

=> d iall 1-17; d ibib ed abs hitind hitstr 18-33; d iall 34-57; fil hom

L146 ANSWER 1 OF 57 MEDLINE on STN DUPLICATE 1
ACCESSION NUMBER: 2005259012 MEDLINE
DOCUMENT NUMBER: PubMed ID: 15898782
TITLE: Probing the interior of peptide **amphiphile** supramolecular aggregates.
AUTHOR: Tovar John D; Claussen Randal C; Stupp Samuel I
CORPORATE SOURCE: Department of Materials Science and Engineering, Institute for BioNanotechnology in Medicine (IBNAM), Northwestern University, Evanston, Illinois 60208, USA.
SOURCE: Journal of the American Chemical Society, (2005 May 25) 127 (20) 7337-45.
Journal code: 7503056. ISSN: 0002-7863.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200507
ENTRY DATE: Entered STN: 20050519
Last Updated on STN: 20050713
Entered Medline: 20050712
ABSTRACT:
We present a study of the aqueous solvation within self-**assembled** structures formed from peptide **amphiphiles.** We have placed

tryptophan and pyrene chromophores onto the peptide backbone to enable spectroscopic examinations of the interior of the resulting supramolecular objects. Self-**assembly** constrains the chromophores to a defined location within an aggregate, and they experience differing degrees of quencher penetration reflective of their depth within the nanostructure. Tryptophan fluorescence indicates that the interiors remain well-solvated, suggesting that the supramolecular aggregates maintain high degrees of free volume. The Stern-Volmer quenching constants and the fractional accessibility (of ***covalently*** bound pyrene) progressively increase as the chromophore is placed closer to the aggregate exterior. Furthermore, these aggregates encourage chromophore uptake from aqueous solution as evidenced by the solubilization of free pyrene chromophores. Our findings demonstrate that ***covalently*** bound fluorophores within an aggregate can interact with the external environment. Studies with small molecular probes indicate that these self-**assembled** architectures may represent viable vehicles to sequester hydrophobic, insoluble organic molecules (within the interior) and to present signaling protein epitopes to cells (on the periphery).

CONTROLLED TERM: Drug Carriers: CS, chemical synthesis
Drug Carriers: CH, chemistry
Fluorescent Dyes: CS, chemical synthesis
*Fluorescent Dyes: CH, chemistry
Models, Molecular
Peptides: CS, chemical synthesis
***Peptides: CH, chemistry**
Pyrenes: CH, chemistry
Research Support, Non-U.S. Gov't
Research Support, U.S. Gov't, Non-P.H.S.
Spectrometry, Fluorescence
Tryptophan: CH, chemistry

CAS REGISTRY NO.: 73-22-3 (Tryptophan)

CHEMICAL NAME: 0 (Drug Carriers); 0 (Fluorescent Dyes); 0 (Peptides); 0 (Pyrenes)

L146 ANSWER 2 OF 57 MEDLINE on STN DUPLICATE 6

ACCESSION NUMBER: 2003096960 MEDLINE

DOCUMENT NUMBER: PubMed ID: 12609897

TITLE: Nanotubules formed by highly hydrophobic **amphiphilic** alpha-helical peptides and natural phospholipids.

AUTHOR: Furuya Tomomi; Kiyota Taira; Lee Sannamu; Inoue Tohru; Sugihara Gohsuke; Logvinova Anna; Goldsmith Paul; Ellerby H Michael

CORPORATE SOURCE: Department of Chemistry, Faculty of Science, Fukuoka University, Japan.

SOURCE: Biophysical journal, (2003 Mar) 84 (3) 1950-9.
Journal code: 0370626. ISSN: 0006-3495.

PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 200311

ENTRY DATE: Entered STN: 20030302
Last Updated on STN: 20031105
Entered Medline: 20031104

ABSTRACT:

We previously reported that the 18-mer **amphiphilic** alpha-helical peptide, Hel 13-5, consisting of 13 hydrophobic residues and five hydrophilic amino acid residues, can induce neutral liposomes (egg yolk phosphatidylcholine) to adopt long nanotubular structures and that the interaction of specific peptides with specific phospholipid mixtures induces

the formation of membrane structures resembling cellular organelles such as the Golgi apparatus. In the present study we focused our attention on the effects of peptide sequence and chain length on the nanotubule formation occurring in mixture systems of Hel 13-5 and various neutral and acidic lipid species by means of turbidity measurements, dynamic light scattering measurements, and electron microscopy. We designed and synthesized two sets of Hel 13-5 related peptides: 1) Five peptides to examine the role of hydrophobic or hydrophilic residues in **amphiphilic** alpha-helical structures, and 2) Six peptides to examine the role of peptide length, having even number residues from 12 to 24. Conformational, solution, and morphological studies showed that the ***amphiphilic*** alpha-helical structure and the peptide chain length (especially 18 amino acid residues) are critical determinants of very long tubular structures. A mixture of alpha-helix and beta-structures determines the tubular shapes and **assemblies.** However, we found that the ***charged*** Lys residues comprising the hydrophilic regions of ***amphiphilic*** structures can be replaced by Arg or Glu residues without a loss of tubular structures. This suggests that the mechanism of microtubule formation does not involve the **charge** interaction. The immersion of the hydrophobic part of the **amphiphilic** peptides into liposomes initially forms elliptic-like structures due to the fusion of small liposomes, which is followed by a transformation into tubular structures of various sizes and shapes.

CONTROLLED TERM: Biomimetic Materials: CS, chemical synthesis
Biomimetic Materials: CH, chemistry
Biomimetics: MT, methods
*Crystallization: MT, methods
Crystallography: MT, methods
Hydrophobicity
Liposomes: CS, chemical synthesis
*Liposomes: CH, chemistry
Macromolecular Substances
Membranes, Artificial
*Nanotechnology: MT, methods
Nephelometry and Turbidimetry
***Peptides: CH, chemistry**
*Phospholipids: CH, chemistry
Research Support, Non-U.S. Gov't

CHEMICAL NAME: 0 (Hel 13-5 peptide); 0 (Liposomes); 0 (Macromolecular Substances); 0 (Peptides); 0 (Phospholipids)

L146 ANSWER 3 OF 57 MEDLINE on STN DUPLICATE 8
ACCESSION NUMBER: 2003303712 MEDLINE
DOCUMENT NUMBER: PubMed ID: 12833255
TITLE: Structure and function of integral membrane protein domains resolved by peptide-**amphiphiles**: application to phospholamban.
AUTHOR: Lockwood Nathan A; Tu Raymond S; Zhang Zhiwen; Tirrell Matthew V; Thomas David D; Karim Christine B
CORPORATE SOURCE: Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN 55455, USA.
CONTRACT NUMBER: GM27906 (NIGMS)
HL62427 (NHLBI)
SOURCE: Biopolymers, (2003 Jul) 69 (3) 283-92.
Journal code: 0372525. ISSN: 0006-3525.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200409
ENTRY DATE: Entered STN: 20030701

Last Updated on STN: 20031218
Entered Medline: 20040930

ABSTRACT:
We have used synthetic lipidated peptides ("peptide-**amphiphiles**") to study the structure and function of isolated domains of integral transmembrane proteins. We used 9-fluorenylmethyloxycarbonyl (Fmoc) solid-phase peptide synthesis to prepare full-length phospholamban (PLB(1-52)) and its cytoplasmic (PLB(1-25)K: phospholamban residues 1-25 plus a C-terminal lysine), and transmembrane (PLB(26-52)) domains, and a 38-residue model alpha-helical sequence as a control. We created peptide-**amphiphiles** by linking the C-terminus of either the isolated cytoplasmic domain or the model peptide to a membrane-anchoring, lipid-like **hydrocarbon tail.** Circular dichroism measurements showed that the model peptide-**amphiphile**, either in aqueous suspension or in lipid bilayers, had a higher degree of alpha-helical secondary structure than the unlipidated model peptide. We hypothesized that the peptide-**amphiphile** system would allow us to study the function and structure of the PLB(1-25)K cytoplasmic domain in a native-like configuration. We compared the function (inhibition of the Ca-ATPase in reconstituted membranes) and structure (via CD) of the PLB(1-25) ***amphiphile*** to that of PLB and its isolated transmembrane and cytoplasmic domains. Our results indicate that the cytoplasmic domain PLB(1-25)K has no effect on Ca-ATPase (calcium pump) activity, even when tethered to the membrane in a manner mimicking its native configuration, and that the transmembrane domain of PLB is sufficient for inhibition of the Ca-ATPase.

CONTROLLED TERM: Buffers
Calcium-Binding Proteins: CS, chemical synthesis
*Calcium-Binding Proteins: CH, chemistry
*Calcium-Binding Proteins: ME, metabolism
Circular Dichroism
Hydrogen-Ion Concentration
Lipids: CH, chemistry
Liposomes
Membrane Proteins: CS, chemical synthesis
*Membrane Proteins: CH, chemistry
*Membrane Proteins: ME, metabolism
Peptides: CS, chemical synthesis
***Peptides: CH, chemistry**
Protein Structure, Secondary
Protein Structure, Tertiary
Research Support, Non-U.S. Gov't
Research Support, U.S. Gov't, Non-P.H.S.
Research Support, U.S. Gov't, P.H.S.
Structure-Activity Relationship
CHEMICAL NAME: 0 (Buffers); 0 (Calcium-Binding Proteins); 0 (Lipids); 0 (Liposomes); 0 (Membrane Proteins); 0 (Peptides); 0 (phospholamban)

L146 ANSWER 4 OF 57 MEDLINE on STN DUPLICATE 9
ACCESSION NUMBER: 2002223130 MEDLINE
DOCUMENT NUMBER: PubMed ID: 11929981
TITLE: Peptide-**amphiphile** nanofibers: a versatile scaffold for the preparation of self-assembling materials.
AUTHOR: Hartgerink Jeffrey D; Beniash Elia; Stupp Samuel I
CORPORATE SOURCE: Department of Chemistry and Materials Science, Medical School, Northwestern University, Evanston, IL 60208, USA.
SOURCE: Proceedings of the National Academy of Sciences of the United States of America, (2002 Apr 16) 99 (8) 5133-8. Electronic Publication: 2002-04-02.

Journal code: 7505876. ISSN: 0027-8424.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200206
ENTRY DATE: Entered STN: 20020418
Last Updated on STN: 20030105
Entered Medline: 20020614

ABSTRACT:
Twelve derivatives of peptide-**amphiphile** molecules, designed to self-assemble into nanofibers, are described. The scope of amino acid selection and **alkyl tail** modification in the peptide-***amphiphile*** molecules are investigated, yielding nanofibers varying in morphology, surface chemistry, and potential bioactivity. The results demonstrate the chemically versatile nature of this supramolecular system and its high potential for manufacturing nanomaterials. In addition, three different modes of self-assembly resulting in nanofibers are described, including pH control, divalent ion induction, and concentration.

CONTROLLED TERM: Amino Acids: CH, chemistry
*Chemistry: MT, methods
Cross-Linking Reagents: PD, pharmacology
Hydrogen-Ion Concentration
Ions
Microscopy, Electron
Models, Chemical
Models, Molecular
Nanotechnology
Oxygen: CH, chemistry
***Peptides: CH, chemistry**
Phosphotungstic Acid: CH, chemistry
Protein Structure, Tertiary
Research Support, U.S. Gov't, Non-P.H.S.

CAS REGISTRY NO.: 12067-99-1 (Phosphotungstic Acid); 7782-44-7 (Oxygen)
CHEMICAL NAME: 0 (Amino Acids); 0 (Cross-Linking Reagents); 0 (Ions); 0 (Peptides)

L146 ANSWER 5 OF 57 MEDLINE on STN DUPLICATE 11
ACCESSION NUMBER: 84203553 MEDLINE
DOCUMENT NUMBER: PubMed ID: 6326812
TITLE: Hydrophobic and **electrostatic** interactions between adrenocorticotropin-(1-24) -tetracosapeptide and lipid vesicles. **Amphiphilic** primary structures.
AUTHOR: Gysin B; Schwyzer R
SOURCE: Biochemistry, (1984 Apr 10) 23 (8) 1811-8.
Journal code: 0370623. ISSN: 0006-2960.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198407
ENTRY DATE: Entered STN: 19900319
Last Updated on STN: 19970203
Entered Medline: 19840720

ABSTRACT:
Hydrophobic photolabeling with 3-(trifluoromethyl) -3-(m-[125I]iodophenyl) diazirine ([125I]TID [Brunner, J., & Semenza , G. (1981) Biochemistry 20, 7174-7182]) and equilibrium dialysis were used to study hydrophobic and ***electrostatic*** interactions between three adrenocorticotropin fragments and liposomes prepared from mixtures of phosphatidylcholine with phosphatidic

acid or phosphatidylserine. Corticotropin-(1-10)-decapeptide (ACTH1-10, net ***charge*** 0) formed hydrophobic clusters with [125I]TID in aqueous solutions at peptide concentrations above 1 microM but did not interact appreciably with neutral or anionic liposomes. Corticotropin -(11-24)-tetradecapeptide (ACTH11 -24, net **charge** 6+) reacted ***electrostatically*** with anionic liposomes but showed no hydrophobic interactions. Corticotropin-(1-24)-tetracosapeptide (ACTH1-24, net ***charge*** 6+), a **covalent** combination of the two fragments, exhibited both hydrophobic and **electrostatic** interactions with lipid vesicles. Edman degradation and chymotryptic hydrolysis of labeled ACTH1-24 revealed that the hydrophobic interaction involved the N-terminal decapeptide "message" segment (corresponding to ACTH1-10) which entered the membrane and that the **electrostatic** interaction was caused by the C-terminal tetradecapeptide "address" segment (corresponding to ACTH11 -24) which remained on the aqueous membrane surface. This surface is in complete analogy to that reported for dynorphin- (1-13)-tridecapeptide by Gysin and Schwyzer [Gysin , B., & Schwyer , R. (1983) FEBS Lett. 158, 12-16; Gysin , B., & Schwyzer , R. (1983) Arch. Biochem. Biophys. 225, 467-474]: in both cases, the specific, hydrophobic membrane interaction of the "message" critically depended on the presence of the hydrophilic "address". The results reported here were consistent with those obtained by infrared attenuated total reflection spectroscopy [Gremlich , H.-U., Fringeli , U.-P., & Schwyzer , R. (1983) Biochemistry 22, 4257-4263] and were crucial for their interpretation.(ABSTRACT TRUNCATED AT 250 WORDS)

CONTROLLED TERM: Azirines
Chemistry
***Corticotropin**
Corticotropin: AA, analogs & derivatives
***Cosyntropin**
Iodine Radioisotopes: DU, diagnostic use
Kinetics
*Liposomes
***Peptide Fragments**
*Phosphatidic Acids
*Phosphatidylcholines
Research Support, Non-U.S. Gov't
Structure-Activity Relationship

CAS REGISTRY NO.: 16960-16-0 (Cosyntropin); 4037-00-7 (ACTH (1-10)); 4237-93-8 (ACTH (11-24)); 81340-56-9 (3-(trifluoromethyl)-3-(3-iodophenyl)diazirine); 9002-60-2 (Corticotropin)

CHEMICAL NAME: 0 (Azirines); 0 (Iodine Radioisotopes); 0 (Liposomes); 0 (Peptide Fragments); 0 (Phosphatidic Acids); 0 (Phosphatidylcholines)

L146 ANSWER 6 OF 57 MEDLINE on STN DUPLICATE 12

ACCESSION NUMBER: 84203552 MEDLINE

DOCUMENT NUMBER: PubMed ID: 6326811

TITLE: Interaction of adrenocorticotropin-(11-24)-tetradecapeptide with neutral lipid membranes revealed by infrared attenuated total reflection spectroscopy.

AUTHOR: Gremlich H U; Fringeli U P; Schwyzer R

SOURCE: Biochemistry, (1984 Apr 10) 23 (8) 1808-10.
Journal code: 0370623. ISSN: 0006-2960.

PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 198407

ENTRY DATE: Entered STN: 19900319
Last Updated on STN: 19900319

Entered Medline: 19840720

ABSTRACT:
Infrared attenuated total reflection spectroscopy (IR-ATR) revealed that the hydrophilic adrenocorticotropin-(11-24)-tetradecapeptide (ACTH11 -24, net ***charge*** 6+) assumed an irregular secondary structure when incorporated into the aqueous layers between equilibrated multibilayers of planar membranes prepared from 1-palmitoyl-2-oleoyl-sn-glycero-3-phosphocholine (POPC). This structure was characterized by a perpendicular orientation of the peptide bonds on the bilayer surfaces, as observed earlier for the corresponding segment of adrenocorticotropin-(1-24)-tetracosapeptide (ACTH1-24, 6+). Once incorporated, ACTH11 -24 was not removed by washing, in agreement with its strong positive ***charge.*** In contrast to ACTH1-24, ACTH11 -24 was not measurably adsorbed to the neutral membranes from 0.1 mM aqueous solutions. The more hydrophobic adrenocorticotropin-(1-10)-decapeptide is also not adsorbed. We therefore concluded that adsorption of ACTH1-24 to neutral membranes was dependent on its **amphiphilic** primary (amphipathic primary) structure that resulted from the **covalent** combination of the hydrophobic ACTH1-10 segment with the hydrophilic ACTH11 -24 segment. This conclusion was consistent with the results obtained by vesicle-mediated hydrophobic photolabeling and equilibrium dialysis.

CONTROLLED TERM: Circular Dichroism
***Corticotropin**
***Cosyntropin**
*Liposomes
***Peptide Fragments**
*Phosphatidylcholines
Protein Conformation
Research Support, Non-U.S. Gov't
Spectrophotometry, Infrared

CAS REGISTRY NO.: 16960-16-0 (Cosyntropin); 4237-93-8 (ACTH (11-24)); 6753-55-5 (1-palmitoyl-2-oleoylphosphatidylcholine); 9002-60-2 (Corticotropin)

CHEMICAL NAME: 0 (Liposomes); 0 (Peptide Fragments); 0 (Phosphatidylcholines)

L146 ANSWER 7 OF 57 MEDLINE on STN
ACCESSION NUMBER: 2004395636 MEDLINE
DOCUMENT NUMBER: PubMed ID: 15298927
TITLE: Self-**assembly** of the ionic peptide EAK16: the effect of **charge** distributions on self-**assembly.**
AUTHOR: Jun S; Hong Y; Imamura H; Ha B-Y; Bechhoefer J; Chen P
CORPORATE SOURCE: Department of Physics, Simon Fraser University, Burnaby, British Columbia V5A 1S6, Canada.
SOURCE: Biophysical journal, (2004 Aug) 87 (2) 1249-59. Journal code: 0370626. ISSN: 0006-3495.
PUB. COUNTRY: United States
DOCUMENT TYPE: (EVALUATION STUDIES) Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200502
ENTRY DATE: Entered STN: 20040810
Last Updated on STN: 20050218
Entered Medline: 20050217

ABSTRACT:
Amphiphilic peptides suspended in aqueous solution display a rich set of aggregation behavior. Molecular-level studies of relatively simple ***amphiphilic*** molecules under controlled conditions are an essential step toward a better understanding of self-**assembly** phenomena of naturally

occurring peptides/proteins. Here, we study the influence of molecular architecture and interactions on the self-**assembly** of model peptides (EAK16s), using both experimental and theoretical approaches. Three different types of EAK16 were studied: EAK16-I, -II, and -IV, which have the same amino acid composition but different amino acid sequences. Atomic force microscopy confirms that EAK16-I and -II form fibrillar **assemblies**, whereas EAK16-IV forms globular structures. The Fourier transform infrared spectrum of EAK16-IV indicates the possible formation of a beta-turn structure, which is not found in EAK16-I and -II. Our theoretical and numerical studies suggest the underlying mechanism behind these observations. We show that the hairpin structure is energetically stable for EAK16-IV, whereas the chain entropy of EAK16-I and -II favors relatively stretched conformations. Our combined experimental and theoretical approaches provide a clear picture of the interplay between single-chain properties, as determined by peptide sequences (or **charge** distributions), and the emerging structure at the nano (or more coarse-grained) level.

CONTROLLED TERM: Check Tags: Comparative Study
Computer Simulation
Dimerization
Electrostatics
Microscopy, Atomic Force
*Models, Chemical
*Models, Molecular
*Multiprotein Complexes: CH, chemistry
*Multiprotein Complexes: UL, ultrastructure
***Oligopeptides: CH, chemistry**
Protein Conformation

CHEMICAL NAME: 0 (EAK16 peptide); 0 (Multiprotein Complexes); 0 (Oligopeptides)

L146 ANSWER 8 OF 57 MEDLINE on STN
ACCESSION NUMBER: 2004361901 MEDLINE
DOCUMENT NUMBER: PubMed ID: 15264872
TITLE: Self-**assembling** nanocomplexes from insulin and water-soluble branched polyesters, poly[(vinyl-3-(diethylamino)- propylcarbamate-co-(vinyl acetate)-co-(vinyl alcohol)]-graft- poly(L-lactic acid): a novel carrier for transmucosal delivery of peptides.
AUTHOR: Simon M; Wittmar M; Bakowsky U; Kissel T
CORPORATE SOURCE: Department of Pharmaceutics and Biopharmacy, Philipps-University, Ketzerbach 63, D-35037, Marburg, Germany.
SOURCE: Bioconjugate chemistry, (2004 Jul-Aug) 15 (4) 841-9. Journal code: 9010319. ISSN: 1043-1802.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200501
ENTRY DATE: Entered STN: 20040722
Last Updated on STN: 20050202
Entered Medline: 20050131

ABSTRACT:
The design of carriers for protein delivery that provide protection against enzymatic degradation and facilitate protein transport across epithelial surfaces, thus avoiding parenteral administration, remains a challenge. Self-***assembling*** nanoscale protein/polymer complexes might present a promising approach. We synthesized water-soluble, **amphiphilic** polyesters, poly[(vinyl-3-(diethylamino)-propylcarbamate-co-(vinyl acetate)-co-(vinyl alcohol)]-graft-poly(L-lactic acid), containing a positively

charged backbone, and studied the spontaneous formation of nanocomplexes (NC) with insulin. NC were characterized using dynamic light scattering, zeta-potential measurements, and atomic force microscopy (AFM). Insulin loading was determined with HPLC, and the binding constants were obtained by isothermal titration calorimetry (ITC). The NC formation was followed using nephelometric and light scattering techniques. Water-soluble, positively **charged**, branched polyesters with **amphiphilic** properties were obtained in a three-step polymer-analogous reaction. The degree of amine substitution, DS, in the PVAL backbone was varied between 0.04 and 0.5, and grafting this backbone with L-lactide increased the molecular weight from 18 kDa to 81 kDa. The polymer composition was optimized to facilitate NC formation with insulin resulting in a DS of 0.09 and a poly(L-lactide) side chain substitution of 0.5 with an average chain length of two lactic acids. Depending on polymer composition, stable NC of 200-500 nm diameter were formed with insulin, and the binding constants ranged from 4.7 x 10(5) to 9.5 x 10(6) M(-1). Positively **charged** surface ***charges*** ranging from +5 to +35mV and an insulin loading up to 98% of 33 IU/mL were obtained. The NC visualized by AFM revealed spheroidal particles with an entangled internal structure. It was demonstrated that this class of multifunctional polymers is capable of self-**assembly** with a peptidic substrate. The resulting nanosized complexes offer the potential for mucosal insulin/protein delivery and merit further investigations under in vivo conditions.

CONTROLLED TERM:
Biological Transport
Calorimetry
Drug Delivery Systems: IS, instrumentation
*Drug Delivery Systems: MT, methods
Insulin: AD, administration & dosage
***Insulin: CH, chemistry**
Insulin: ME, metabolism
Magnetic Resonance Spectroscopy
Microscopy, Atomic Force
*Mucous Membrane: ME, metabolism
*Nanostructures: CH, chemistry
Nanotechnology
Peptides: AD, administration & dosage
Peptides: CH, chemistry
***Peptides: ME, metabolism**
Polyesters: CS, chemical synthesis
*Polyesters: CH, chemistry
Research Support, Non-U.S. Gov't
Solubility
*Water: CH, chemistry

CAS REGISTRY NO.: 11061-68-0 (Insulin); 7732-18-5 (Water)

CHEMICAL NAME: 0 (Peptides); 0 (Polyesters); 0 (poly((vinyl-3-(diethylamino)propylcarbamate)-co-(vinyl acetate)-co-(vinyl alcohol))-graft-poly(lactic acid))

L146 ANSWER 9 OF 57 MEDLINE on STN

ACCESSION NUMBER: 2004402766 MEDLINE

DOCUMENT NUMBER: PubMed ID: 15306805

TITLE: Self-**assembly** of **amphiphilic** dendritic dipeptides into helical pores.

AUTHOR: Percec Virgil; Dulcey Andres E; Balagurusamy Venkatachalapathy S K; Miura Yoshiko; Smidrkal Jan; Peterca Mihai; Nummelin Sami; Edlund Ulrica; Hudson Steven D; Heiney Paul A; Duan Hu; Magonov Sergei N; Vinogradov Sergei A

CORPORATE SOURCE: Roy & Diana Vagelos Laboratories, Department of Chemistry, University of Pennsylvania, Philadelphia, Pennsylvania

19104-6323, USA.. percec@sas.upenn.edu
SOURCE: Nature, (2004 Aug 12) 430 (7001) 764-8.
Journal code: 0410462. ISSN: 1476-4687.
PUB. COUNTRY: England: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200408
ENTRY DATE: Entered STN: 20040813
Last Updated on STN: 20040824
Entered Medline: 20040823

ABSTRACT:
Natural pore-forming proteins act as viral helical coats and transmembrane channels, exhibit antibacterial activity and are used in synthetic systems, such as for reversible encapsulation or stochastic sensing. These diverse functions are intimately linked to protein structure. The close link between protein structure and protein function makes the design of synthetic mimics a formidable challenge, given that structure formation needs to be carefully controlled on all hierarchy levels, in solution and in the bulk. In fact, with few exceptions, synthetic pore structures capable of **assembling** into periodically ordered **assemblies** that are stable in solution and in the solid state have not yet been realized. In the case of dendrimers, ***covalent*** and non-**covalent** coating and **assembly** of a range of different structures has only yielded closed columns. Here we describe a library of **amphiphilic** dendritic dipeptides that self-***assemble*** in solution and in bulk through a complex recognition process into helical pores. We find that the molecular recognition and self-***assembly*** process is sufficiently robust to tolerate a range of modifications to the **amphiphile** structure, while preliminary proton transport measurements establish that the pores are functional. We expect that this class of self-**assembling** dendrimers will allow the design of a variety of biologically inspired systems with functional properties arising from their porous structure.

CONTROLLED TERM: Biological Transport
*Biopolymers: CH, chemistry
*Biopolymers: ME, metabolism
Calorimetry, Differential Scanning
Circular Dichroism
***Dipeptides: CH, chemistry**
***Dipeptides: ME, metabolism**
Hydrogen Bonding
Magnetic Resonance Spectroscopy
Microscopy, Electron
Models, Molecular
Porosity
Protein Structure, Quaternary
Protons
Research Support, Non-U.S. Gov't
Research Support, U.S. Gov't, Non-P.H.S.
Stereoisomerism
CHEMICAL NAME: 0 (Biopolymers); 0 (Dipeptides); 0 (Protons)

L146 ANSWER 10 OF 57 MEDLINE on STN
ACCESSION NUMBER: 2004583885 MEDLINE
DOCUMENT NUMBER: PubMed ID: 15556403
TITLE: **Covalent** capture: a natural complement to self-**assembly.**
AUTHOR: Hartgerink Jeffrey D
CORPORATE SOURCE: Rice University, Department of Chemistry and Bioengineering, 6100 Main Street, MS60, Houston, TX 77005,

USA.. jdh@rice.edu
SOURCE: Current opinion in chemical biology, (2004 Dec) 8 (6) 604-9. Ref: 35
Journal code: 9811312. ISSN: 1367-5931.
PUB. COUNTRY: England: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200504
ENTRY DATE: Entered STN: 20041124
Last Updated on STN: 20050419
Entered Medline: 20050418

ABSTRACT:
The utility of peptide self-**assembly** can be extended by ***covalent*** capture of these supramolecular materials. Disulfide bond formation, native chemical ligation, olefin metathesis, radical capture and oxidative lysine cross-linking have been used recently to help stabilize and characterize a variety of self-**assembled** peptides. These include natural peptides, proteins and protein mimics such as alpha-helical coiled coils, amyloid-like beta-sheet fibres, portions of p53, glutathione S-transferase and elastin as well as unnatural peptide constructs such as cyclic peptide nanotubes and cylindrical micelles of peptide ***amphiphiles.***

CONTROLLED TERM: Deamination
Disulfides: CH, chemistry
Oxidation-Reduction
***Peptides: CH, chemistry**
Protein Conformation
Protein Folding
Research Support, Non-U.S. Gov't
Research Support, U.S. Gov't, Non-P.H.S.
CHEMICAL NAME: 0 (Disulfides); 0 (Peptides)

L146 ANSWER 11 OF 57 MEDLINE on STN
ACCESSION NUMBER: 2002287719 MEDLINE
DOCUMENT NUMBER: PubMed ID: 12024209
TITLE: Rapidly recovering hydrogel scaffolds from self-**assembling** diblock copolypeptide **amphiphiles.**
COMMENT: Comment in: Nature. 2002 May 23;417(6887):388-9, 391.
PubMed ID: 12024197
AUTHOR: Nowak Andrew P; Breedveld Victor; Pakstis Lisa; Ozbas Bulent; Pine David J; Pochan Darrin; Deming Timothy J
CORPORATE SOURCE: Department of Materials, University of California, Santa Barbara, California 93106, USA.
SOURCE: Nature, (2002 May 23) 417 (6887) 424-8.
Journal code: 0410462. ISSN: 0028-0836.
PUB. COUNTRY: England: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200206
ENTRY DATE: Entered STN: 20020528
Last Updated on STN: 20020619
Entered Medline: 20020618

ABSTRACT:
Protein-based hydrogels are used for many applications, ranging from food and cosmetic thickeners to support matrices for drug delivery and tissue

replacement. These materials are usually prepared using proteins extracted from natural sources, which can give rise to inconsistent properties unsuitable for medical applications. Recent developments have utilized recombinant DNA methods to prepare artificial protein hydrogels with specific association mechanisms and responsiveness to various stimuli. Here we synthesize diblock copolypeptide **amphiphiles** containing **charged** and hydrophobic segments. Dilute solutions of these copolypeptides would be expected to form micelles; instead, they form hydrogels that retain their mechanical strength up to temperatures of about 90 degrees C and recover rapidly after stress. The use of synthetic materials permits adjustment of copolymer chain length and composition, which we varied to study their effect on hydrogel formation and properties. We find that gelation depends not only on the **amphiphilic** nature of the polypeptides, but also on chain conformations--alpha-helix, beta-strand or random coil. Indeed, shape-specific supramolecular **assembly** is integral to the gelation process, and provides a new class of peptide-based hydrogels with potential for applications in biotechnology.

CONTROLLED TERM:
Biopolymers: CH, chemistry
Biopolymers: ME, metabolism
Biotechnology
Circular Dichroism
*Electrolytes: CH, chemistry
Electrolytes: ME, metabolism
Electrostatics
Heat
*Hydrogels: CH, chemistry
Hydrogels: ME, metabolism
Hydrophobicity
Micelles
***Peptides: CH, chemistry**
Peptides: ME, metabolism
Protein Engineering
Protein Structure, Secondary
Research Support, Non-U.S. Gov't
Research Support, U.S. Gov't, Non-P.H.S.
Rheology
Stress, Mechanical

CHEMICAL NAME: 0 (Biopolymers); 0 (Electrolytes); 0 (Hydrogels); 0 (Peptides)

L146 ANSWER 12 OF 57 MEDLINE on STN
ACCESSION NUMBER: 2002162033 MEDLINE
DOCUMENT NUMBER: PubMed ID: 11893393
TITLE: Interaction between polylysine monolayer and DNA at the air-water interface.
AUTHOR: Niwa Masazo; Morikawa Masa aki; Yagi Kenji; Higashi Nobuyuki
CORPORATE SOURCE: Department of Molecular Science and Technology, Faculty of Engineering, Doshisha University, Kyotanabe, Kyoto 610-0321, Japan.. mniwa@mail.doshisha.ac.jp
SOURCE: International journal of biological macromolecules, (2002 Mar 8) 30 (1) 47-54.
Journal code: 7909578. ISSN: 0141-8130.
PUB. COUNTRY: England: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200207
ENTRY DATE: Entered STN: 20020315
Last Updated on STN: 20020730

Entered Medline: 20020729

ABSTRACT:
The interaction of a polylysine **amphiphile**, which consists of a poly-L- or -D-lysine (1L or 1D) segment and two long alkyl chains at the C-terminus, with polynucleotides was studied with respect to the highly organized structure of polylysine **assemblies** on water. The results of surface pressure-area isotherm measurement showed that both of 1L and 1D formed stable monolayers on water in a neutral pH region. The secondary structure of polylysine segment for the surface monolayer was examined by means of circular dichroism and Fourier transform infrared spectroscopies. The helical structure was retained even at neutral pH, at which polylysine has been known to form a complete random coiled conformation in bulk solution. Protonated, positively **charged** and coiled 1L monolayer could interact ***electrostatically*** with guest polyanions including DNA in the subphase, and at the same time the conformation of the polylysine segment was converted from a random coil to an alpha-helix. Deprotonated, helical monolayers did not interact with single stranded polyadenylic acid, but with double stranded DNA. Double stranded DNA was found to interact more strongly with right-handed 1L monolayer than left-handed 1D monolayer. An obvious difference in the melting temperatures for these complexes was observed and discussed on the basis of difference in the interaction mode.

CONTROLLED TERM: Check Tags: In Vitro
Air
Animals
Cattle
Circular Dichroism
*DNA: CH, chemistry
Electrostatics
Hydrogen-Ion Concentration
Macromolecular Substances
***Polylysine: CH, chemistry**
Protein Structure, Secondary
Spectroscopy, Fourier Transform Infrared
Surface Properties
Surface-Active Agents: CH, chemistry
Thermodynamics
Water

CAS REGISTRY NO.: 25104-18-1 (Polylysine); 7732-18-5 (Water); 9007-49-2 (DNA)
CHEMICAL NAME: 0 (Macromolecular Substances); 0 (Surface-Active Agents)

L146 ANSWER 13 OF 57 MEDLINE on STN
ACCESSION NUMBER: 2001195472 MEDLINE
DOCUMENT NUMBER: PubMed ID: 11179592
TITLE: Aggregational behavior of aqueous dispersions of the antifungal lipopeptide iturin A.
AUTHOR: Grau A; Gomez-Fernandez J C; Peypoux F; Ortiz A
CORPORATE SOURCE: Departamento de Bioquimica y Biologia Molecular-A, Universidad de Murcia, E-30100 Espinardo, Murcia, Spain.
SOURCE: Peptides, (2001 Jan) 22 (1) 1-5.
Journal code: 8008690. ISSN: 0196-9781.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200107
ENTRY DATE: Entered STN: 20010716
Last Updated on STN: 20010716
Entered Medline: 20010712

ABSTRACT:
Iturin A, a lipopeptide isolated from Bacillus subtilis, possesses a strong

antifungal activity, and has been devoted to a great deal of attention. Since iturin is an **amphiphilic** compound with a great propensity to self-associate in solution as well as inside the membrane, the question arises to whether its aggregational behavior is dependent on the concentration of the lipopeptide. In order to test this, the ability of iturin suspensions to encapsulate water-soluble molecules has been examined. Iturin was dispersed at different concentrations above its critical micellar concentration, in a buffer containing the water-soluble dye 5,6-carboxyfluorescein. For iturin A micelles, a Stokes radius of 1.3 nm and an aggregational number of 7 was obtained. The results shown in this work clearly demonstrate that iturin dispersions in water, at concentrations of 0.7, 1.4 and 3 mM, i.e. far above the critical micellar concentration (40 microM), are capable of encapsulating carboxyfluorescein, probably by adopting a type of aggregate different from the micelle. Negative-staining electron microscopy shows the presence of vesicles with an average size of 150 nm. By using (14)C-iturin, it is shown that, at 3 mM concentration, 40 % of the iturin molecules adopt this vesicular state. It is proposed that iturin molecules form a fully interdigitated bilayer, where each **hydrocarbon tail** span the entire hydrocarbon width of the bilayer, resulting in multilamellar vesicles capable of encapsulating an aqueous compartment. The possible implications of these results to the membrane destabilizing effect of iturin A, are discussed according to the dynamic **cone**-shape of the iturin molecule.

CONTROLLED TERM: ***Antibiotics, Peptide: CH, chemistry**
Antibiotics, Peptide: PD, pharmacology
Antifungal Agents: CH, chemistry
Antifungal Agents: PD, pharmacology
Bacillus subtilis
***Peptides**
Protein Binding
Research Support, Non-U.S. Gov't

CAS REGISTRY NO.: 52229-90-0 (iturin A)

CHEMICAL NAME: 0 (Antibiotics, Peptide); 0 (Antifungal Agents); 0 (Peptides)

L146 ANSWER 14 OF 57 MEDLINE on STN

ACCESSION NUMBER: 1999158620 MEDLINE

DOCUMENT NUMBER: PubMed ID: 10049327

TITLE: Morphological behavior of acidic and neutral liposomes induced by basic **amphiphilic** alpha-helical peptides with systematically varied hydrophobic-hydrophilic balance.

AUTHOR: Kitamura A; Kiyota T; Tomohiro M; Umeda A; Lee S; Inoue T; Sugihara G

CORPORATE SOURCE: Department of Chemistry, Faculty of Science, Fukuoka University, Jonan-ku, Fukuoka 814-0180, Japan.

SOURCE: Biophysical journal, (1999 Mar) 76 (3) 1457-68.
Journal code: 0370626. ISSN: 0006-3495.

PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 199904

ENTRY DATE: Entered STN: 19990420
Last Updated on STN: 19990420
Entered Medline: 19990405

ABSTRACT:
Lipid-peptide interaction has been investigated using cationic ***amphiphilic*** alpha-helical peptides and systematically varying their hydrophobic-hydrophilic balance (HHB). The influence of the peptides on neutral and acidic liposomes was examined by 1) Trp fluorescence quenched by

brominated phospholipid, 2) membrane-clearing ability, 3) size determination of liposomes by dynamic light scattering, 4) morphological observation by electron microscopy, and 5) ability to form planar lipid bilayers from channels. The peptides examined consist of hydrophobic Leu and hydrophilic Lys residues with ratios 13:5, 11:7, 9:9, 7:11, and 5:13 (abbreviated as Hels 13-5, 11-7, 9-9, 7-11, and 5-13, respectively; Kiyota, T., S. Lee, and G. Sugihara. 1996. Biochemistry. 35:13196-13204). The most hydrophobic peptide (Hel 13-5) induced a twisted ribbon-like fibril structure for egg PC liposomes. In a 3/1 (egg PC/egg PG) lipid mixture, Hel 13-5 addition caused fusion of the liposomes. Hel 13-5 formed ion channels in neutral lipid bilayer (egg PE/egg PC = 7/3) at low peptide concentrations, but not in an acidic bilayer (egg PE/brain PS = 7/3). The peptides with hydrophobicity less than Hel 13-5 (Hels 11-7 and Hel 9-9) were able to partially immerse their hydrophobic part of the ***amphiphilic*** helix in lipid bilayers and fragment liposome to small bicelles or micelles, and then the bicelles aggregated to form a larger ***assembly.*** Peptides Hel 11-7 and Hel 9-9 each formed strong ion channels. Peptides (Hel 7-11 and Hel 5-13) with a more hydrophilic HHB interacted with an acidic lipid bilayer by **charge** interaction, in which the former immerses the hydrophobic part in lipid bilayer, and the latter did not immerse, and formed large **assemblies** by aggregation of original liposomes. The present study clearly showed that hydrophobic-hydrophilic balance of a peptide is a crucial factor in understanding lipid-peptide interactions.

CONTROLLED TERM: Check Tags: In Vitro
Biophysics
Hydrogen-Ion Concentration
Ion Channels: CH, chemistry
*Liposomes: CH, chemistry
Microscopy, Electron
Models, Molecular
Particle Size
***Peptides: CH, chemistry**
Phosphatidylcholines: CH, chemistry
Protein Structure, Secondary
Research Support, Non-U.S. Gov't
Spectrometry, Fluorescence

CAS REGISTRY NO.: 61596-55-2 (1,2-di(9,10-dibromostearoyl)phosphatidylcholine)

CHEMICAL NAME: 0 (Ion Channels); 0 (Liposomes); 0 (Peptides); 0 (Phosphatidylcholines)

L146 ANSWER 15 OF 57 MEDLINE on STN

ACCESSION NUMBER: 1999439560 MEDLINE

DOCUMENT NUMBER: PubMed ID: 10508967

TITLE: Design and characterization of anchoring **amphiphilic** peptides and their interactions with lipid vesicles.

AUTHOR: Percot A; Zhu X X; Lafleur M

CORPORATE SOURCE: Departement de chimie, Universite de Montreal, C. P. 6128, succursale Centre-ville, Montreal, Quebec H3C 3J7, Canada.

SOURCE: Biopolymers, (1999 Nov) 50 (6) 647-55.
Journal code: 0372525. ISSN: 0006-3525.

PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 199911

ENTRY DATE: Entered STN: 20000113
Last Updated on STN: 20000113
Entered Medline: 19991130

ABSTRACT:
In an effort to develop a polymer/peptide **assembly** for the immobilization of lipid vesicles, we have made and characterized four water-soluble **amphiphilic** peptides designed to associate spontaneously and strongly with lipid vesicles without causing significant leakage from anchored vesicles. These peptides have a primary ***amphiphilic*** structure with the following sequences: AAAAAAAAAAAAWKKKKKK, AALLLAAAAAAAAAAAAAAAAAWKKKKKK, and KKAALLLAAAAAAAAAAAAAAAAAWKKKKKK and its reversed homologue KKKKKKWAAAAA AAAAAAAAAAAAALLLAAKK. Two of the four peptides have their hydrophobic segments capped at both termini with basic residues to stabilize the transmembrane orientation and to increase the affinity for negatively ***charged*** vesicles. We have studied the secondary structure and the membrane affinity of the peptides as well as the effect of the different peptides on the membrane permeability. The influence of the hydrophobic length and the role of lysine residues were clearly established. First, a hydrophobic segment of 24 amino acids, corresponding approximately to the thickness of a lipid bilayer, improves considerably the affinity to zwitterionic lipids compared to the shorter one of 12 amino acids. The shorter peptide has a low membrane affinity since it may not be long enough to adopt a stable conformation. Second, the presence of lysine residues is essential since the binding is dominated by **electrostatic** interactions, as illustrated by the enhanced binding with anionic lipids. The **charges** at both ends, however, prevent the peptide from inserting spontaneously in the bilayer since it would involve the translocation of a **charged** end through the apolar core of the bilayer. The direction of the amino acid sequence of the peptide has no significant influence on its behavior. None of these peptides perturbs membrane permeability even at an incubation lipid to peptide molar ratio of 0.5. Among the four peptides, AALLLAAAAAAAAAAAAAAAAAWKKKKKK is identified as the most suitable anchor for the immobilization of lipid vesicles.

CONTROLLED TERM: Check Tags: In Vitro
Amino Acid Sequence
Drug Design
Lipid Bilayers
Liposomes
Models, Chemical
Molecular Sequence Data
Peptides: CS, chemical synthesis
***Peptides: CH, chemistry**
Protein Binding
Protein Structure, Secondary
Research Support, Non-U.S. Gov't
Solubility
Water
CAS REGISTRY NO.: 7732-18-5 (Water)
CHEMICAL NAME: 0 (Lipid Bilayers); 0 (Liposomes); 0 (Peptides)

L146 ANSWER 16 OF 57 MEDLINE on STN
ACCESSION NUMBER: 1999255419 MEDLINE
DOCUMENT NUMBER: PubMed ID: 10320682
TITLE: A study on the interactions of surfactin with phospholipid vesicles.
AUTHOR: Grau A; Gomez Fernandez J C; Peypoux F; Ortiz A
CORPORATE SOURCE: Departamento de Bioquimica y Biologia Molecular-A, Facultad de Veterinaria, Universidad de Murcia, E-30100 Espinardo, Murcia, Spain.
SOURCE: Biochimica et biophysica acta, (1999 May 12) 1418 (2) 307-19.

Journal code: 0217513. ISSN: 0006-3002.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199906
ENTRY DATE: Entered STN: 19990628
Last Updated on STN: 19990628
Entered Medline: 19990615

ABSTRACT:
Surfactin, an acidic lipopeptide produced by various strains of Bacillus subtilis, behaves as a very powerful biosurfactant and posses several other interesting biological activities. By means of differential scanning calorimetry and X-ray diffraction the effect of surfactin on the phase transition properties of bilayers composed of different phospholipids, including lipids forming hexagonal-HII phases, has been studied. The interactions of surfactin with phosphatidylcholine and phosphatidylglycerol seem to be optimal in the case of myristoyl acyl chains, which have a similar length to the surfactin **hydrocarbon tail.** Data are shown that support formation of complexes of surfactin with phospholipids. The ionized form of surfactin seems to be more deeply inserted into negatively charged bilayers when Ca2+ is present, also supporting the formation of surfactin-Ca2+ complexes. In mixtures with dielaidoylphosphatidylethanolamine, a hexagonal-HII phase forming lipid, surfactin displays a bilayer stabilizing effect. Our results are compatible with the marked **amphiphilic** nature of surfactin and may contribute to explain some of its interesting biological actions; for instance the formation of ion-conducting pores in membranes.

CONTROLLED TERM: *Bacterial Proteins: CH, chemistry
Calorimetry, Differential Scanning
*Lipid Bilayers: CH, chemistry
***Peptides, Cyclic**
Phosphatidylcholines: CH, chemistry
Phosphatidylethanolamines: CH, chemistry
Phosphatidylglycerols: CH, chemistry
*Phospholipids: CH, chemistry
Research Support, Non-U.S. Gov't
Temperature
X-Ray Diffraction
CAS REGISTRY NO.: 24730-31-2 (surfactin); 61361-72-6 (dimyristoylphosphatidylglycerol)
CHEMICAL NAME: 0 (Bacterial Proteins); 0 (Lipid Bilayers); 0 (Peptides, Cyclic); 0 (Phosphatidylcholines); 0 (Phosphatidylethanolamines); 0 (Phosphatidylglycerols); 0 (Phospholipids)

L146 ANSWER 17 OF 57 MEDLINE on STN
ACCESSION NUMBER: 95298740 MEDLINE
DOCUMENT NUMBER: PubMed ID: 7540040
TITLE: Potassium flux through gramicidin ion channels is augmented in vesicles comprised of plasmenylcholine: correlations between gramicidin conformation and function in chemically distinct host bilayer matrices.
AUTHOR: Chen X; Gross R W
CORPORATE SOURCE: Department of Internal Medicine, Washington University School of Medicine, St. Louis, Missouri 63110, USA.
CONTRACT NUMBER: 41250
SOURCE: Biochemistry, (1995 Jun 6) 34 (22) 7356-64.
Journal code: 0370623. ISSN: 0006-2960.
PUB. COUNTRY: United States

L146 ANSWER 18 OF 57 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 10
ACCESSION NUMBER: 2000:813319 CAPLUS
DOCUMENT NUMBER: 134:101176
TITLE: Induction of protein-like molecular architecture by monoalkyl hydrocarbon chains
AUTHOR(S): Forns, Pilar; Lauer-Fields, Janelle L.; Gao, Su; Fields, Gregg B.
CORPORATE SOURCE: Department of Chemistry and Biochemistry, Florida Atlantic University, Boca Raton, FL, 33431-0991, USA
SOURCE: Biopolymers (2000), 54(7), 531-546
CODEN: BIPMAA; ISSN: 0006-3525
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 20 Nov 2000
AB Numerous approaches have been described for creating relatively small folded biomol. structures. "Peptide-amphiphiles," whereby monoalkyl or dialkyl hydrocarbon chains are **covalently** linked to peptide sequences, have been shown previously to form specific mol. architecture of enhanced stability. The present study has examined the use of monoalkyl hydrocarbon chains as a more general method for inducing protein-like structures. Peptide and peptide-amphiphiles have been characterized by CD and one- and two-dimensional NMR spectroscopic techniques. We have examined two structural elements: α-helixes and collagen-like triple helixes. The α-helical propensity of a 16-residue peptide either unmodified or acylated with a C6 or C16 monoalkyl hydrocarbon chain has been examined initially. The 16-residue peptide alone does not form a distinct structure in solution, whereas the 16-residue peptide adopts predominantly an α-helical structure in solution when a C6 or C16 monoalkyl hydrocarbon chain is N-terminally acylated. The thermal stability of the α-helix is greater upon addition of the C16 compared with the C6 chain, which correlates to the extent of aggregation induced by the resp. hydrocarbon chains. Very similar results are seen using a 39-residue triple-helical model peptide, in that structural thermal stability (a) is increasingly enhanced as alkyl chain length is increased and (b) correlates to the extent of peptide-amphiphile aggregation. Overall, structures as diverse as α-helixes, triple helixes, and turns/loops have been shown to be induced and/or stabilized by alkyl chains. Increasing alkyl chain length enhances stability of the structural element and induces aggregates of defined sizes. Hydrocarbon chains may be useful as general tools for protein-like structure initiation and stabilization as well as biomaterial modification.
CC 34-3 (Amino Acids, Peptides, and Proteins)
Section cross-reference(s): 22
ST peptide **amphiphile** monoalkyl chain folded mol structure; **amphiphile** peptide conformation alpha helix
IT Peptides, properties
RL: PRP (Properties)
(**amphiphiles**; induction of protein-like mol. architecture by monoalkyl hydrocarbon chains)
IT **Amphiphiles**
(peptide; induction of protein-like mol. architecture by monoalkyl hydrocarbon chains)
IT 221041-60-7P **296783-07-8P** 296783-11-4P **296783-22-7P** 318473-40-4P 318473-43-7P **318473-44-8P** 318969-31-2P 318969-32-3P 318969-42-5P 318969-43-6P 318969-60-7P 318974-18-4P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(induction of protein-like mol. architecture by monoalkyl hydrocarbon chains)
IT **296783-07-8P 296783-22-7P 318473-44-8P**

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199507
ENTRY DATE: Entered STN: 19950726
Last Updated on STN: 19970203
Entered Medline: 19950719

ABSTRACT:
The functional role of distinct phospholipid subclasses and molecular species in modulating gramicidin-mediated K+ flux was characterized through quantification of changes in the fluorescence intensity of ion specific fluorescent probes encapsulated inside vesicles comprised of individual molecular species of plasmenylcholine and phosphatidylcholine. The rate constant of gramicidin-mediated K+ ion flux across bilayers comprised of 1-O-(Z)-hexadec-1'-enyl-2-octadec-9'-enoyl-sn-glycero-3-p hos phocholine (plasmenylcholine) was 18.9 +/- 1.7 s-1, while that present across bilayers comprised of 1-hexadecanoyl-2-octadec-9'-enoyl-sn-glycero-3-phosphocholine (phosphatidylcholine) was 12.3 +/- 1.5 s-1. The observed changes were not due to alterations in the nature of the sn-2 aliphatic chain or the net surface ***charge*** present at the membrane interface and were unaltered by the addition of several **amphiphilic** agents (including **charged** ***amphiphiles***), suggesting that the observed alterations specifically reflect changes in channel function which result from the **covalent** alteration of host phospholipid in the proximal portion of the sn-1 aliphatic chain (i.e., phospholipid subclass-specific alterations). Addition of cholesterol to bilayer matrices comprised of plasmenylcholine resulted in dose-dependent attenuation of the rate of gramicidin-mediated K+ flux, but did not alter the rate of gramicidin-mediated K+ flux in membranes comprised of phosphatidylcholine. Gramicidin ion channels experience distinct environments in membranes comprised of phosphatidylcholine and plasmenylcholine host lipids demonstrated by both the different fluorescence anisotropies of endogenous tryptophan residues and the different C=O stretching frequencies of intramonomer carbonyls in gramicidin incorporated into these two choline glycerophospholipid subclasses.(ABSTRACT TRUNCATED AT 250 WORDS)

CONTROLLED TERM: Check Tags: Comparative Study
Cholesterol
***Gramicidin**
*Ion Channels
Kinetics
*Lipid Bilayers
Mathematics
*Models, Biological
Models, Theoretical
Molecular Conformation
*Phosphatidylcholines
*Plasmalogens
*Potassium: CH, chemistry
Research Support, U.S. Gov't, P.H.S.
Spectrometry, Fluorescence
Structure-Activity Relationship
Time Factors

CAS REGISTRY NO.: 1405-97-6 (Gramicidin); 57-88-5 (Cholesterol); 7440-09-7 (Potassium)

CHEMICAL NAME: 0 (Ion Channels); 0 (Lipid Bilayers); 0 (Phosphatidylcholines); 0 (Plasmalogens); 0 (choline plasmalogens)

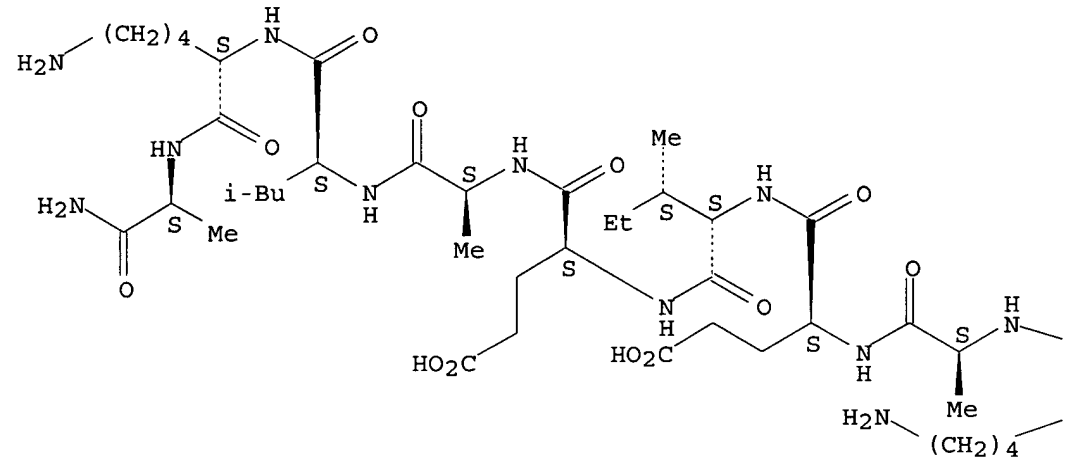
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(induction of protein-like mol. architecture by monoalkyl hydrocarbon chains)

RN 296783-07-8 CAPLUS

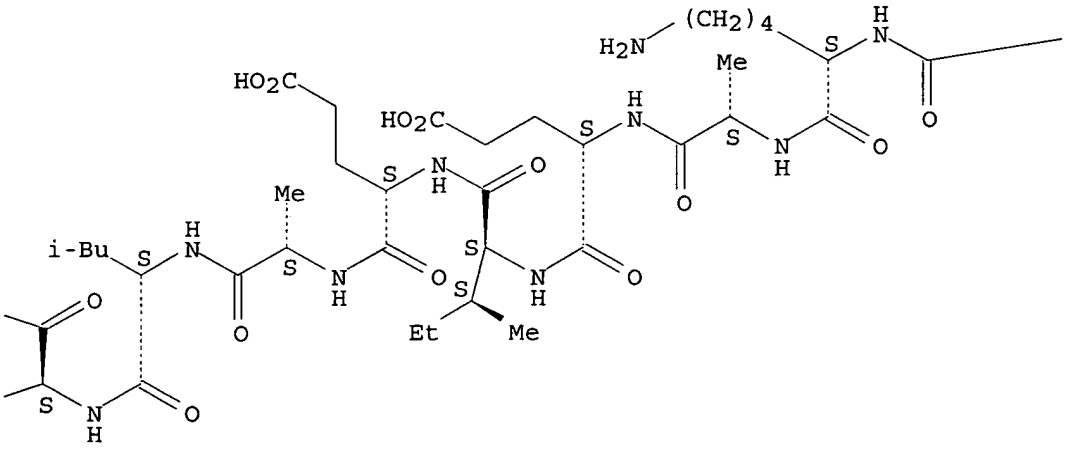
CN L-Alaninamide, N2-(1-oxohexadecyl)-L-lysyl-L-alanyl-L-α-glutamyl-L-isoleucyl-L-α-glutamyl-L-alanyl-L-leucyl-L-lysyl-L-alanyl-L-α-glutamyl-L-isoleucyl-L-α-glutamyl-L-alanyl-L-leucyl-L-lysyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

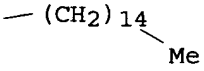
PAGE 1-A



PAGE 1-B



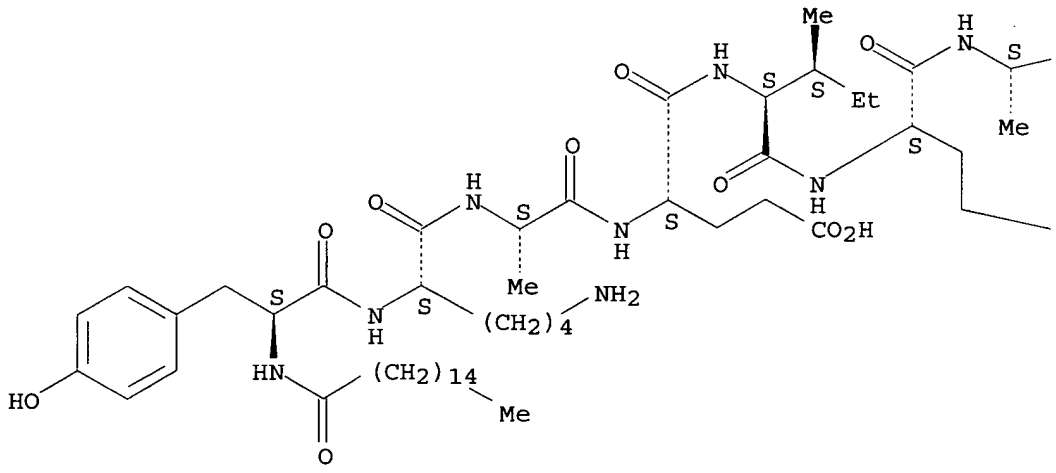
PAGE 1-C



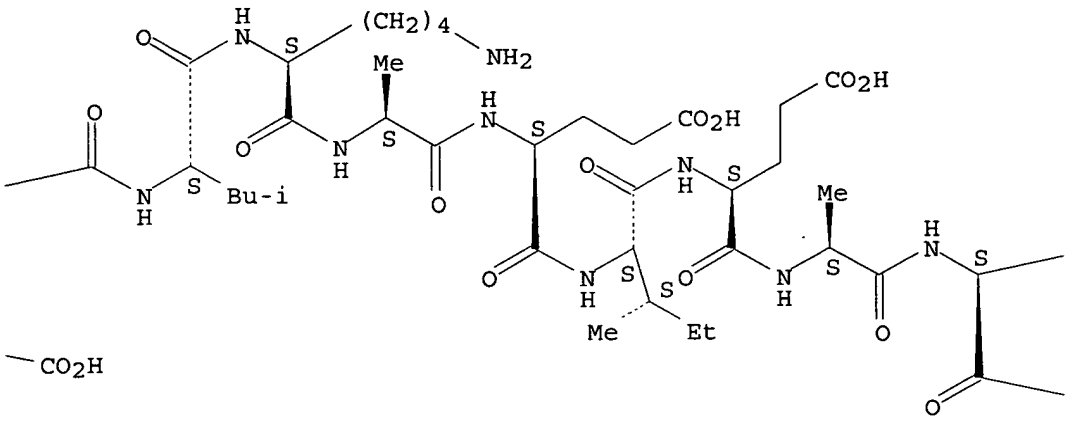
RN 296783-22-7 CAPLUS
CN L-Alaninamide, N-(1-oxohexadecyl)-L-tyrosyl-L-lysyl-L-alanyl-L-α-glutamyl-L-isoleucyl-L-α-glutamyl-L-alanyl-L-leucyl-L-lysyl-L-alanyl-L-α-glutamyl-L-isoleucyl-L-α-glutamyl-L-alanyl-L-leucyl-L-lysyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



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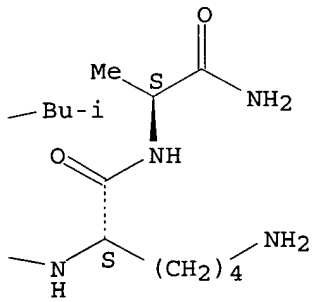
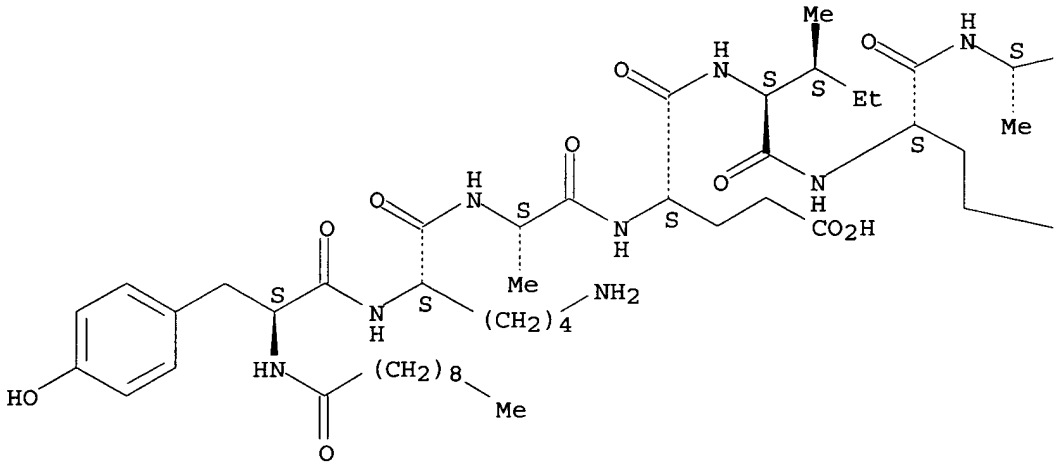


RN 318473-44-8 CAPLUS
CN L-Alaninamide, N-(1-oxodecyl)-L-tyrosyl-L-lysyl-L-alanyl-L-α-glutamyl-L-isoleucyl-L-α-glutamyl-L-alanyl-L-leucyl-L-lysyl-L-alanyl-L-α-glutamyl-L-isoleucyl-L-α-glutamyl-L-alanyl-L-leucyl-L-lysyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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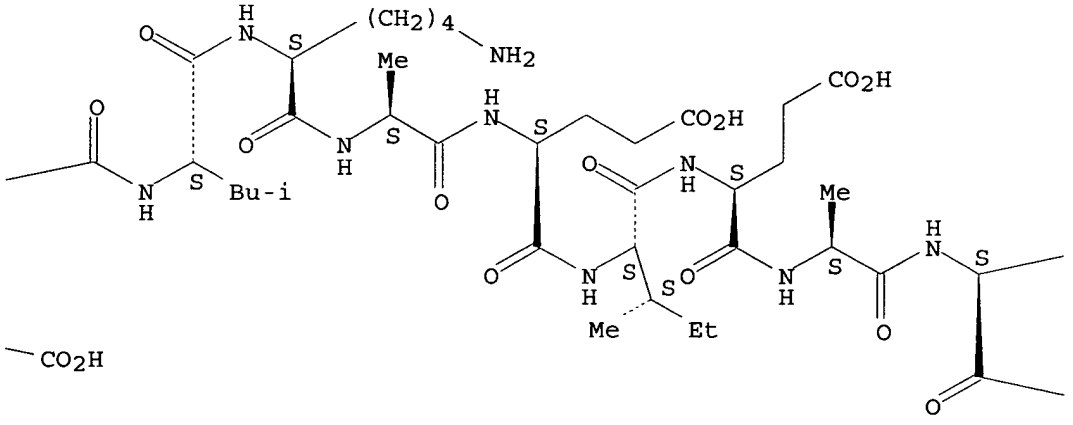

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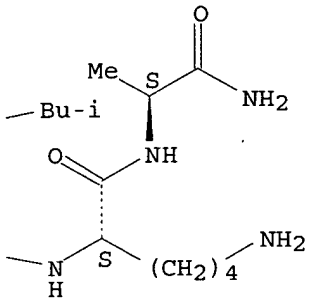


REFERENCE COUNT: 71 THERE ARE 71 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L146 ANSWER 19 OF 57 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:733190 CAPLUS
TITLE: α-Helix to β-sheet transitions of novel short peptides conjugated to lipids induced by aggregation
AUTHOR(S): Shimada, Tomoko; Tirrell, Matthew
CORPORATE SOURCE: Materials Research Lab, University of California-Santa Barbara, Santa Barbara, CA, 93106, USA
SOURCE: PMSE Preprints (2005), 93, 127-128
CODEN: PPMRA9; ISSN: 1550-6703
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal; (computer optical disk)
LANGUAGE: English
ED Entered STN: 12 Aug 2005
AB New peptide-amphiphiles (PA), having peptide head-groups attached to a **hydrocarbon tail** are presented and used as a simple model that undergoes α-helix to β-sheet transitions. In PA conjugates, peptides have been conferred a self-assembling character by the tail that the peptide alone does not possess. A simple alanine-based peptide changes its conformational structures from α-helix to β-sheet only due to the self-assembling force of PAs without any other changes in its environment. Results of a α-helix to β-sheet transition due to self-assembly of the conjugates could have significance for the understanding of misfolding and aggregation of proteins, especially prion proteins, because of the connection among β-rich abnormal prion, the thermal stability of β-sheet and mad cow disease.
CC 6 (General Biochemistry)
ST **peptide amphiphile** lipid self assembly conjugation alanine prion protein
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L146 ANSWER 20 OF 57 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:194220 CAPLUS
TITLE: Cooperative DNA binding and assembly by a bZip-**peptide-amphiphile**
AUTHOR(S): Tirrell, Matthew V.

CORPORATE SOURCE: Departments of Chemical Engineering and Materials, University of California, Santa Barbara, CA, 93106, USA
SOURCE: Abstracts of Papers, 229th ACS National Meeting, San Diego, CA, United States, March 13-17, 2005 (2005), POLY-122. American Chemical Society: Washington, D. C.
CODEN: 69GQMP
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
ED Entered STN: 06 Mar 2005
AB The bipartite basic zipper (bZip) GCN4-peptide, containing a leucine zipper and a basic-binding region, is a well studied transcription factor that can be rationally adapted to control binding specificity and dimerization. We have **covalently** appended **alkyl tails**' to the C-terminus (leucine zipper terminus) of a bZip sequence, yielding mono- and di-alkyl bZip-peptide-amphiphiles that allow us to investigate how mol. design can control self-assembly and direct binding characteristics. We demonstrate that these peptide-amphiphiles exhibit four qualities that are representative of its modular construction. First, CD confirms that self-assembly of peptide-amphiphiles above the critical micelle concentration (CMC) results in an enhanced secondary structure (coiled-coil -helixes) as peptide head-groups are confined to the assembled interface with high local concns. Second, peptide-amphiphiles bind to DNA giving a further increase in secondary structure, where the helicity of the basic-binding region is stabilized by forming native-like contacts, an "induced fit mechanism". Third, competitive fluorescence binding assays show peptide-amphiphiles bind cooperatively to DNA well below the CMC, where DNA templates monomeric binding and hydrophobic forces promote cooperativity. And fourth, SANS results demonstrate the assembly of large lamellar aggregates as peptide-amphiphiles complex with DNA, supporting a structural hypothesis in which peptide-amphiphiles bind to the DNA in a native-like standing' orientation. These designed synthetic mol. architectures are capable of hierarchical assembly making them useful as functional building blocks that can possibly be applied to a variety of systems, including artificial transcription factors, DNA sepns., and gene delivery.

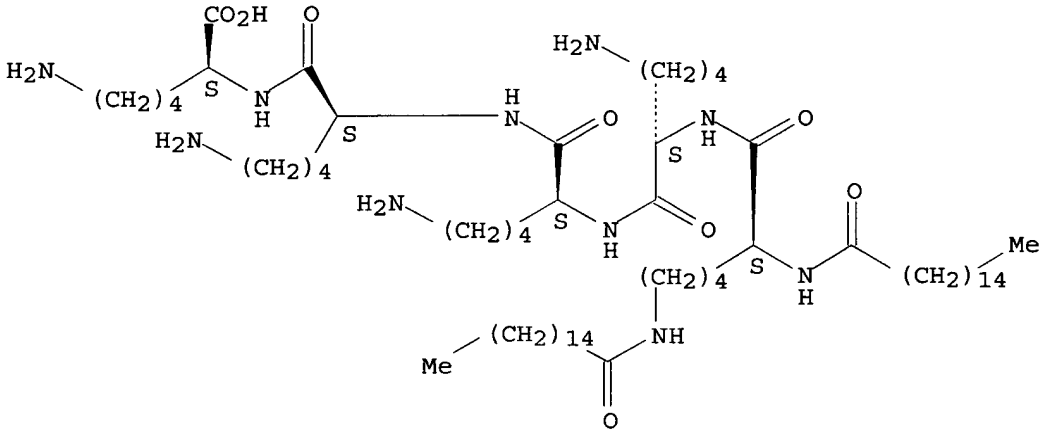
L146 ANSWER 21 OF 57 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:181240 CAPLUS
TITLE: Self-assembly of polymerizable **peptide-amphiphiles**
AUTHOR(S): Bianco-Peled, Havazelet; Biton, Ronit; Tu, Raymond; Talmon, Yeshayahu; Tirrell, Matthew
CORPORATE SOURCE: Department of Chemical Engineering, Technion - Israel Institute of Technology, Haifa, 32000, Israel
SOURCE: Abstracts of Papers, 225th ACS National Meeting, New Orleans, LA, United States, March 23-27, 2003 (2003), COLL-136. American Chemical Society: Washington, D. C.
CODEN: 69DSA4
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
ED Entered STN: 11 Mar 2003
AB Peptides amphiphile couple the specific functionality of proteins with the engineering convenience of synthetic amphiphiles. Theses mols. **covalently** link a peptide head-group, typically from active fragment of a larger protein, to hydrophobic **alkyl tail** . Our research is aimed at forming and characterizing **covalently** stabilized self-assembled peptide-amphiphiles aggregates that can be used

as a platform for examination and design of biol. systems. We have studied the self-assembly properties of a model DNA binding amphiphile, having a GCN4 peptide as the head group and polymerizble (methacrylic) group in the tail region, using a combination of cryo- transmission electron microscopy and small-angle x-ray scattering. Our results revealed a variety of self-assembled structures, ranging from simple geometries such as spherical or thread-like micelles to much less common geometries such as helical ribbons and tubules. Opposing common surfactants, the specific interaction between the head-groups seems to play an important role in determining the microstructure.

L146 ANSWER 22 OF 57 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:242904 CAPLUS
DOCUMENT NUMBER: 139:328246
TITLE: **Amphiphilic** lipopeptide microparticles as contrast agents for medical ultrasound imaging
AUTHOR(S): Cuthbertson, Alan; Tornes, Audun; Solbakken, Magne; Moen, Ove; Eriksen, Morten
CORPORATE SOURCE: Dep. of Exploratory Res., Amersham Health AS, Oslo, Norway
SOURCE: Macromolecular Bioscience (2003), 3(1), 11-17
CODEN: MBAIBU; ISSN: 1616-5187
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 30 Mar 2003
AB In this study the authors investigated the utility of complementary amphiphilic lipopeptides as a new membrane formulation suitable for the preparation of gas-filled microbubbles. Through primarily ion pairing and hydrophobic interactions we rationalized that the stacking of synthetic lipopeptides into the surface of microbubbles would make bubble suspensions useful as ultrasound contrast agents. By mixing **charged** lipopeptides in propylene glycol/glycerol solns. in the presence of a perfluorocarbon gas followed by vigorous shaking, microbubble suspensions were formed in good yield with a size distribution spanning the range 1-7+10-6 m. The microbubbles were studied in an in vivo model and provided imaging efficacy comparable with conventional ultrasound contrast agents.
CC 63-8 (Pharmaceuticals)
ST **amphiphilic** lipopeptide contrast agent ultrasound imaging
IT Solubilization
(**Amphiphilic** lipopeptide microparticles as contrast agents for medical ultrasound imaging)
IT Lipopeptides
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**Amphiphilic** lipopeptide microparticles as contrast agents for medical ultrasound imaging)
IT Imaging
(acoustic; **Amphiphilic** lipopeptide microparticles as contrast agents for medical ultrasound imaging)
IT Imaging agents
(contrast; **Amphiphilic** lipopeptide microparticles as contrast agents for medical ultrasound imaging)
IT **248602-33-7 248602-35-9** 248602-45-1 248602-46-2 248602-47-3
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**Amphiphilic** lipopeptide microparticles as contrast agents for medical ultrasound imaging)

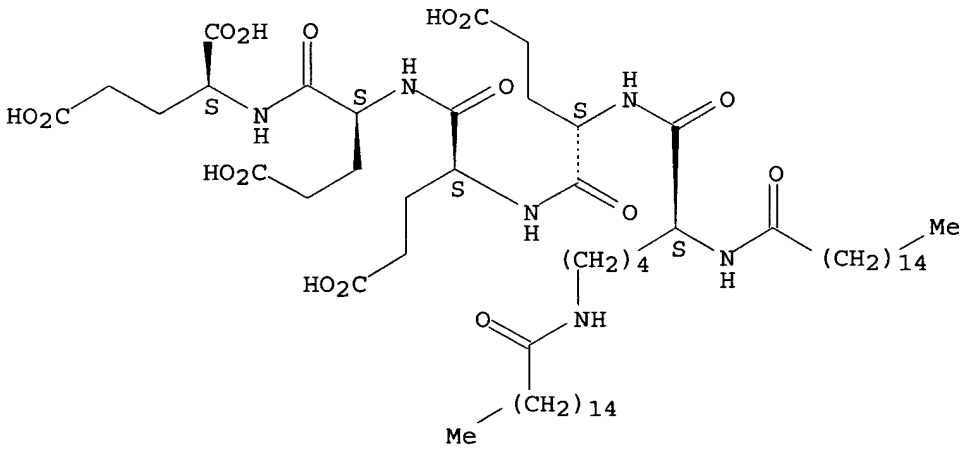
IT **248602-33-7 248602-35-9**
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**Amphiphilic** lipopeptide microparticles as contrast agents for medical ultrasound imaging)
RN 248602-33-7 CAPLUS
CN L-Lysine, N2,N6-bis(1-oxohexadecyl)-L-lysyl-L-lysyl-L-lysyl-L-lysyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 248602-35-9 CAPLUS
CN L-Glutamic acid, N2,N6-bis(1-oxohexadecyl)-L-lysyl-L-α-glutamyl-L-α-glutamyl-L-α-glutamyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L146 ANSWER 23 OF 57 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:307254 CAPLUS
DOCUMENT NUMBER: 137:63391
TITLE: Bottom-up synthesis and structural properties of

self-assembled high-axial-ratio nanostructures
AUTHOR(S): Shimizu, Toshimi
CORPORATE SOURCE: Nanoarchitectonics Research Center (NARC), National Institute of Advanced Industrial Science and Technology (AIST), CREST, Japan Science and Technology Corporation (JST), Tsukuba, 305-8565, Japan
SOURCE: Macromolecular Rapid Communications (2002), 23(5/6), 311-331
CODEN: MRCOE3; ISSN: 1022-1336
PUBLISHER: Wiley-VCH Verlag GmbH
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
ED Entered STN: 24 Apr 2002
AB A review giving an overview the of noncovalent formation of high-axial-ratio nanostructures (HARNs), such as fibers, rods, tubes and ropes, through the self-assembly of bola-form amphiphilic monomers. Nature allows structural building blocks to hierarchically organize into any structures in atomic order resolution, which are formed spontaneously in bottom-up fashion. Of particular interest is that nanostructures in nature can be constructed with high accuracy and min. energy. It is, on the contrary, still difficult for mankind to achieve the total synthesis and structural control of macromols. only by **covalent** chemical synthesis. A variety of bolaamphiphiles in which sugars, peptides, or nucleo-bases are connected to both **ends** of a **hydrocarbon** spacer, were synthesized. Their morphologies proved to strongly depend on the spacer chain lengths and even/odd carbon nos. of the oligo(methylene) spacers used. The presented self-assembled HARNs are constructed hierarchically in a manner similar to biol. structures.
CC 33-0 (Carbohydrates)
IT **Amphiphiles**
(bolaform; bottom-up synthesis and structural properties of self-assembled high-axial-ratio bolaamphiphile nanostructures)
IT Carbohydrates, preparation
Nucleic acid bases
Peptides, preparation
RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation)
(bottom-up synthesis and structural properties of self-assembled high-axial-ratio bolaamphiphile nanostructures)
REFERENCE COUNT: 163 THERE ARE 163 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L146 ANSWER 24 OF 57 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:371131 CAPLUS
DOCUMENT NUMBER: 137:79188
TITLE: **Peptide-amphiphile** induction of α-helical and triple-helical structures
AUTHOR(S): Fields, Gregg B.; Forns, Pilar; Pisarewicz, Katarzyna; Lauer-Fields, Janelle L.
CORPORATE SOURCE: Department of Chemistry and Biochemistry and Center for Molecular Biology and Biotechnology, Florida Atlantic University, Boca Raton, FL, 33431, USA
SOURCE: ACS Symposium Series (2002), 812(Synthetic Macromolecules with Higher Structural Order), 117-129
CODEN: ACSMC8; ISSN: 0097-6156
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
ED Entered STN: 19 May 2002
AB A review with refs. Protein-like mol. architecture has often been created

by utilizing the ability of peptides to self-assemble and form higher order three-dimensional structures. For example, "peptide-amphiphiles" are pseudo-lipids attached to Nα-amino groups of peptide chains. The alignment of amphiphilic compds. at the lipid-solvent interface is used to facilitate peptide alignment and structure initiation and propagation. CD and NMR spectroscopies have been used to examine the secondary or super-secondary structures of a series of peptides both with and without lipophilic **hydrocarbon "tails."**. Overall, the tails (a) do not disrupt the structures of the peptide "head groups," but in fact enhance structure thermal stability and (b) significantly reduce the necessary length for a peptide to have predominantly an α-helical or triple-helical structure in solution The extent of peptide-amphiphile aggregation appears to be correlated to **hydrocarbon tail** length. The peptide-amphiphiles described here provide a simple approach for building stable protein structural motifs using peptide head groups, and have potential as therapeutics and for improving biomaterial biocompatibility.

CC 34-0 (Amino Acids, Peptides, and Proteins)
Section cross-reference(s): 6, 22

ST review lipid **peptide amphiphile** self assembly helix structure protein

IT Aggregation
Amphiphiles
Conformation
Conformational transition
Protein motifs
Self-assembly
α-Helix
(CD and NMR study of the self-assembly of lipidated **peptide amphiphiles** in forming protein-like mol. architecture)

IT Lipopeptides
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(CD and NMR study of the self-assembly of lipidated **peptide amphiphiles** in forming protein-like mol. architecture)

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L146 ANSWER 25 OF 57 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:300514 CAPLUS
DOCUMENT NUMBER: 134:331617
TITLE: Oil-in-water emulsion compositions for polyfunctional active ingredients
INVENTOR(S): Chen, Feng-jing; Patel, Mahesh V.
PATENT ASSIGNEE(S): Lipocine, Inc., USA
SOURCE: PCT Int. Appl., 82 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001028555	A1	20010426	WO 2000-US28835	20001018

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU,

ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 2002107265 A1 20020808 US 1999-420159 19991018
US 6720001 B2 20040413
PRIORITY APPLN. INFO.: US 1999-420159 A 19991018
ED Entered STN: 27 Apr 2001
AB Pharmaceutical oil-in-water emulsions for delivery of polyfunctional active ingredients with improved loading capacity, enhanced stability, and reduced irritation and local toxicity are described. Emulsions include an aqueous phase, an oil phase comprising a structured triglyceride, and an emulsifier. The structured triglyceride of the oil phase is substantially free of triglycerides having three medium chain (C6-C12) fatty acid moieties, or a combination of a long chain triglyceride and a polarity-enhancing polarity modifier. The present invention also provides methods of treating an animal with a polyfunctional active ingredient, using dosage forms of the pharmaceutical emulsions. For example, an emulsion was prepared, with cyclosporin A as the polyfunctional active ingredient dissolved in an oil phase including a structured triglyceride (Captex 810D) and a long chain triglyceride (safflower oil). The composition contained (by weight) cyclosporin A 1.0, Captex 810D 5.0, safflower oil 5.0, BHT 0.02, egg phospholipid 2.4, dimyristoylphosphatidyl glycerol 0.2, glycerol 2.25, EDTA 0.01, and water up to 100%, resp.
IC ICM A61K031-355
ICS A61K031-20
CC 63-6 (Pharmaceuticals)
IT Peptides, biological studies
Proteins, general, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**amphiphilic**; oil-in-water emulsion compns. for polyfunctional active ingredients)
IT Drug delivery systems
(**solns.**, nasal; oil-in-water emulsion compns. for polyfunctional active ingredients)
IT Drug delivery systems
(**solns.**, ophthalmic; oil-in-water emulsion compns. for polyfunctional active ingredients)
IT Drug delivery systems
(**solns.**; oil-in-water emulsion compns. for polyfunctional active ingredients)
IT 50-14-6, Ergocalciferol 50-21-5D, Lactic acid, glycerides 50-24-8, Prednisolone 50-28-2, Estradiol, biological studies 50-34-0, Propantheline bromide 50-56-6, Oxytocin, biological studies 50-70-4, Sorbitol, biological studies 51-15-0, Pralidoxime chloride 51-43-4, Epinephrine 51-48-9, L-Thyroxine, biological studies 51-55-8, Atropine, biological studies 51-60-5, Neostigmine methyl sulfate 52-01-7, Spironolactone 52-24-4, Thiotepa 55-98-1, Busulfan 56-81-5, Glycerol, biological studies 57-13-6, Urea, biological studies 57-22-7, Vincristine 57-55-6, Propylene glycol, biological studies 57-55-6D, Propylene glycol, fatty acid esters 57-64-7, Physostigmine salicylate 57-83-0, Progesterone, biological studies 57-88-5, Cholesterol, biological studies 57-88-5D, Cholesterol, fatty acid esters and polyethoxylated 57-94-3, Tubocurarine chloride 59-05-2, Methotrexate 60-31-1, Acetylcholine chloride 62-31-7, Dopamine hydrochloride 63-91-2, Phenylalanine, biological studies 64-17-5, Ethanol, biological studies 65-28-1, Phentolamine mesylate 66-76-2, Dicoumarol 67-20-9, Nitrofurantoin 67-45-8, Furazolidone 67-96-9, Dihydrotachysterol 67-97-0, Cholecalciferol 68-19-9, Vitamin B12 69-65-8, D-Mannitol 70-51-9, Deferoxamine 71-27-2, Suxamethonium

chloride 74-89-5, Methanamine, biological studies 76-57-3, Codeine 76-90-4, Mepenzolate bromide 76-99-3, Methadone 77-19-0, Dicyclomine 83-44-3, Deoxycholic acid 87-33-2, Isosorbide dinitrate 89-57-6, Mesalamine 101-26-8, Pyridostigmine bromide 104-31-4, Benzonatate 107-21-1, Ethylene glycol, biological studies 112-80-1, Oleic acid, biological studies 113-15-5, Ergotamine 113-92-8, Chlorpheniramine 114-07-8, Erythromycin 114-80-7, Neostigmine bromide 115-77-5, Pentaerythritol, biological studies 121-44-8, Triethylamine, biological studies 122-32-7, Glyceryl trioleate 125-84-8, Aminoglutethimide 126-07-8, Griseofulvin 129-06-6, Warfarin sodium 131-49-7, Diatrizoate meglumine 140-64-7, Pentamidine isethionate 147-94-4, Cytarabine 154-21-2, Lincomycin 155-97-5, Pyridostigmine 298-46-4, 5H-Dibenz[b,f]azepine-5-carboxamide 298-57-7, Cinnarizine 298-81-7, Methoxsalen 299-42-3, Ephedrine 300-62-9, Amphetamine 302-79-4, Tretinoin 303-49-1, Clomipramine 321-64-2, Tacrine 359-83-1, Pentazocine 378-44-9, Betamethasone 404-86-4, Capsaicin 437-38-7, Fentanyl 443-48-1, Metronidazole 502-65-8, Lycopene 511-12-6, Dihydroergotamine 520-85-4, Medroxyprogesterone 537-40-6, Glyceryl trilinoleate 541-15-1, Carnitine 595-33-5 596-51-0, Glycopyrrolate 616-91-1, Acetylcysteine 665-66-7, Amantadine hydrochloride 737-31-5, Diatrizoate sodium 865-21-4, Vinblastin 911-45-5, Clomiphene 1115-70-4, Metformin hydrochloride 1134-47-0, Baclofen 1264-72-8, Colistin sulfate 1319-82-0, Aminocaproic acid 1397-89-3, Amphotericin B 1403-66-3, Gentamycin 1404-90-6, Vancomycin 1405-20-5, Polymixin B sulfate 1405-37-4, Capreomycin sulfate 1405-87-4, Bacitracin 1406-16-2, Vitamin D 1406-18-4, Vitamin E 1492-18-8, Leucovorin calcium 1501-84-4, Rimantadine hydrochloride 1684-40-8, Tacrine hydrochloride 1695-77-8, Spectinomycin 1951-25-3, Amiodarone 1972-08-3, Tetrahydrocannabinol 2016-88-8, Amiloride hydrochloride 3056-17-5, Stavudine 3485-62-9, Clidinium bromide 3778-73-2, Isofosfamide 3930-20-9, Sotalol 4291-63-8, Cladribine 4419-39-0, Beclomethasone 4759-48-2, Isotretinoin 5104-49-4, Flurbiprofen 5534-95-2, Pentagastrin 6493-05-6, Pentoxifylline 6990-06-3, Fusidic acid 7261-97-4, Dantrolene 7414-83-7, Etidronate disodium 7481-89-2, Zalcitabine 7648-98-8, Ambenonium 7689-03-4, Camptothecin **8068-28-8**, Colistimethate sodium 9001-28-9, Factor IX 9002-01-1, Streptokinase 9002-60-2, Corticotropin, biological studies 9004-17-5, NPH insulin 9005-07-6, PEG 400 dioleate 9005-63-4D, fatty acid esters 9007-48-1, Plurol Oleique CC497 9007-92-5, Glucagon, biological studies 9015-68-3, Asparaginase 9034-40-6, Gonadotropin releasing hormone 9039-53-6, Urokinase 9041-08-1, Dalteparin sodium 9041-93-4, Bleomycin sulfate 9087-70-1, Aprotinin 10238-21-8, Glyburide 10540-29-1, Tamoxifen 10596-23-3, Clodronic acid 11000-17-2, Vasopressin 11061-68-0, Human insulin 11103-57-4, Vitamin A 11140-04-8, Imwitor 988 12001-79-5, Vitamin K 12584-58-6, Insulin porcine 12619-70-4, Cyclodextrin 12629-01-5, Human growth hormone 13265-10-6, Methscopolamine 14465-68-0, Glyceryl trilinolenate 15307-86-5, Diclofenac 15500-66-0, Pancuronium bromide 15574-96-6, Pizotifen 15663-27-1, Cisplatin 15686-51-8, Clemastine 15686-71-2, Cephalexin 15687-27-1, Ibuprofen 15826-37-6, Cromolyn sodium 16679-58-6, Desmopressin 16960-16-0, Cosyntropin 17230-88-5, Danazol 18323-44-9, Clindamycin 18559-94-9, Albuterol 18883-66-4, Streptozocin 19356-17-3, Calcifediol 20537-88-6, Amifostine 20594-83-6, Nalbuphine 20830-75-5, Digoxin 21215-62-3, Human calcitonin 21256-18-8, Oxaprozin 21679-14-1, Fludarabine 21829-25-4, Nifedipine 22254-24-6, Ipratropium bromide 22916-47-8, Miconazole 23031-32-5, Terbutaline sulfate 23214-92-8, Doxorubicin 23288-49-5, Probucol 24356-60-3, Cephapirin sodium 25126-32-3, Sincalide 25322-68-3, Polyethylene glycol 25322-69-4, Polypropylene glycol 25523-97-1, Dexchlorpheniramine 25618-55-7, Polyglycerol 25812-30-0, Gemfibrozil 26839-75-8, Timolol

27164-46-1, Cefazolin sodium 27203-92-5, Tramadol 29094-61-9, Glipizide 29122-68-7, Atenolol 29767-20-2, Teniposide 30516-87-1, Zidovudine 32222-06-3, Calcitriol 33069-62-4, Paclitaxel 33419-42-0, Etoposide 33515-09-2, Gonadorelin 33564-30-6, Cefoxitin sodium 34787-01-4, Ticarcillin 34911-55-2, Bupropion 36791-04-5, Ribavirin 37220-82-9, Peceol 37321-62-3, Lauroglycol FCC 38304-91-5, Minoxidil 39809-25-1, Penciclovir 41340-25-4, Etodolac 41575-94-4, Carboplatin 42057-22-7, Mezlocillin sodium 42540-40-9, Cefamandole nafate 42924-53-8, Nabumetone 43200-80-2, Zopiclone 47931-85-1, Calcitonin salmon 49562-28-9, Fenofibrate 49697-38-3, Rimexolone 50700-72-6, Vecuronium bromide 51110-01-1, Somatostatin 51322-75-9, Tizanidine 51333-22-3, Budesonide 51384-51-1, Metoprolol 51481-61-9, Cimetidine 53123-88-9, Sirolimus 53179-11-6, Loperamide 53230-10-7, Mefloquine 53910-25-1, Pentostatin 54063-53-5, Propafenone 54910-89-3, Fluoxetine 54965-21-8, Albendazole 55079-83-9, Acitretin 55142-85-3, Ticlopidine 56180-94-0, Acarbose 57248-88-1, Pamidronate disodium 59277-89-3, Acyclovir 59467-70-8, Midazolam 59703-84-3, Piperacillin sodium
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(oil-in-water emulsion compns. for polyfunctional active ingredients)

IT **8068-28-8**, Colistimethate sodium
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(oil-in-water emulsion compns. for polyfunctional active ingredients)

RN 8068-28-8 CAPLUS
CN Colistimethate sodium (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L146 ANSWER 26 OF 57 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:780009 CAPLUS
DOCUMENT NUMBER: 138:354194
TITLE: A novel family of **amphiphilic** α-oxo aldehydes for the site-specific modification of peptides by two palmitoyl groups in **solution** or in liposome suspensions. [Erratum to document cited in CA136:37929]
AUTHOR(S): Bourel-Bonnet, Line; Gras-Masse, Helene; Melnyk, Oleg
CORPORATE SOURCE: Institut de Biologie de Lille, Institut Pasteur de Lille et Universite de Lille 2, UMR 8525 CNRS, Lille, 59021, Fr.
SOURCE: Tetrahedron Letters (2001), 42(46), 8255
CODEN: TELEAY; ISSN: 0040-4039
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 26 Oct 2001
AB The corrected title is given.
CC 34-3 (Amino Acids, Peptides, and Proteins)
Section cross-reference(s): 6
ST erratum oxoaldehyde palmitoyl peptide **amphiphilic** prepn; oxoaldehyde palmitoyl peptide **amphiphilic** prepn erratum; hydrazone ligation hydrazinoacetylpeptide oxoaldehyde peptide liposome bilayer erratum
IT Liposomes
Peptide coupling
(hydrazone ligation of **amphiphilic** peptidyl (oxo)aldehydes with hydrazino-acetyl peptides in liposome bilayer (Erratum))
IT Aldehydes, preparation
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT

(Reactant or reagent)
(oxo, peptidyl; preparation of **amphiphilic** peptidyl (oxo)aldehydes (Erratum))

IT Hydrazones
RL: SPN (Synthetic preparation); PREP (Preparation)
(peptidyl; hydrazone ligation of **amphiphilic** peptidyl (oxo)aldehydes with hydrazino-acetyl peptides (Erratum))

IT Lipopeptides
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of **amphiphilic** peptidyl (oxo)aldehydes (Erratum))

IT 380605-82-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(control peptide; hydrazone ligation of **amphiphilic** peptidyl (oxo)aldehydes with hydrazino-acetyl peptides (Erratum))

IT 326811-05-6 380605-81-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrazone ligation of **amphiphilic** peptidyl (oxo)aldehydes with hydrazino-acetyl peptides (Erratum))

IT **380605-83-4P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(hydrazone ligation of **amphiphilic** peptidyl (oxo)aldehydes with hydrazino-acetyl peptides (Erratum))

IT 57-10-3, Hexadecanoic acid, reactions 4246-51-9 4480-83-5, 1,4-Dioxane-2,6-dione 29022-11-5, Fmoc-Gly-OH 71989-26-9 71989-38-3 78081-87-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of **amphiphilic** peptidyl (oxo)aldehydes (Erratum))

IT 303157-52-0P **380605-80-1P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of **amphiphilic** peptidyl (oxo)aldehydes (Erratum))

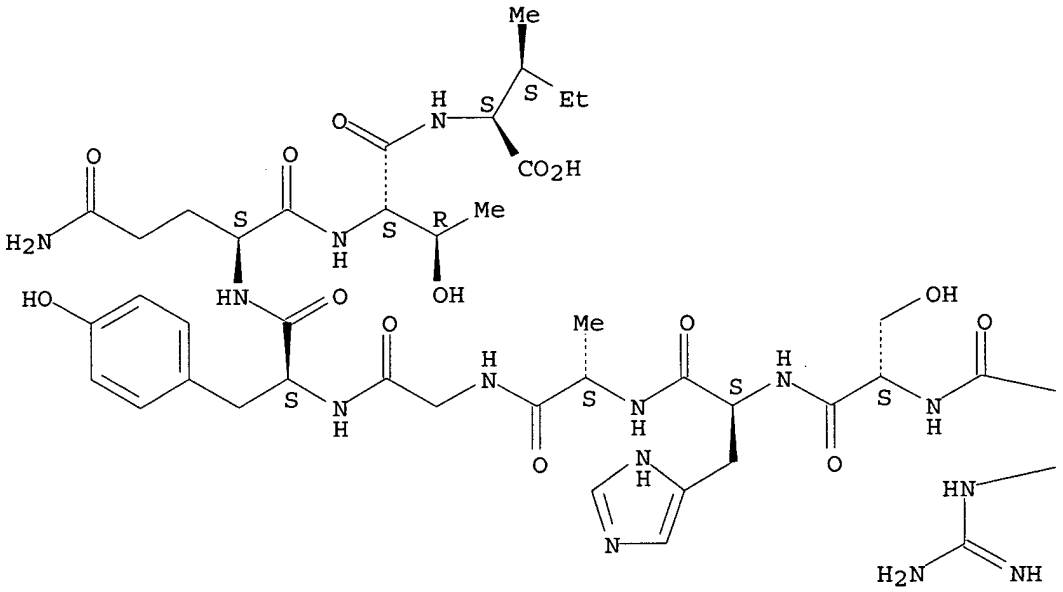
IT **380605-83-4P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(hydrazone ligation of **amphiphilic** peptidyl (oxo)aldehydes with hydrazino-acetyl peptides (Erratum))

RN 380605-83-4 CAPLUS

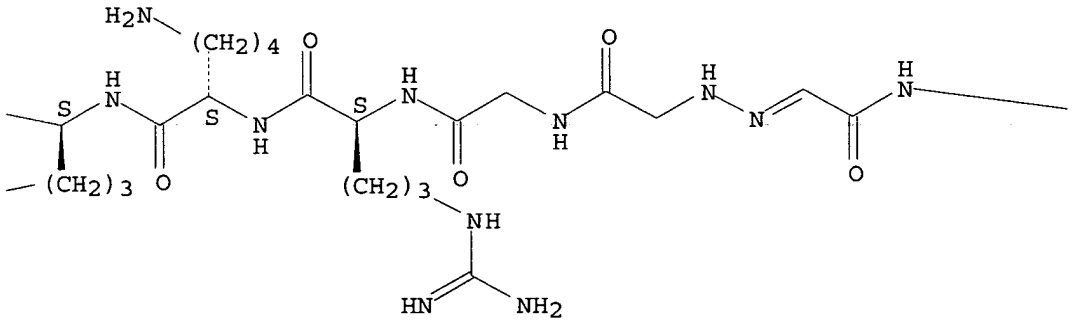
CN L-Isoleucine, N2,N6-bis(1-oxohexadecyl)-L-lysyl-L-tyrosyl-19-amino-5-oxo-3,10,13,16-tetraoxa-6-azanonadecanoylglycyl[[2-[(3-aminopropyl)amino]-2-oxoethylidene]hydrazino]acetylglycyl-L-arginyl-L-lysyl-L-arginyl-L-seryl-L-histidyl-L-alanylglycyl-L-tyrosyl-L-glutaminyl-L-threonyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.
Double bond geometry unknown.

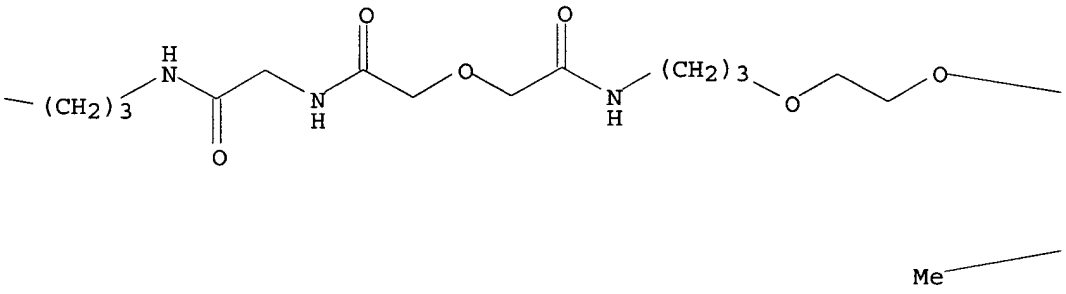
PAGE 1-A



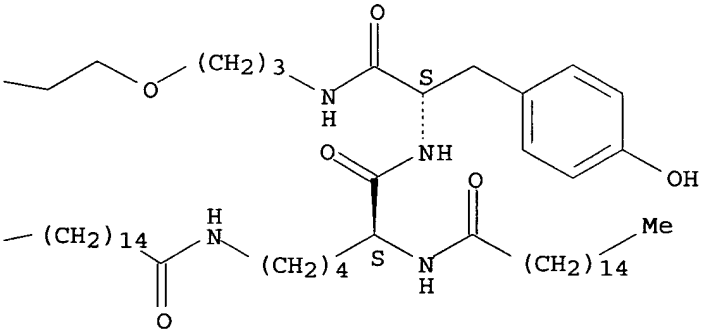
PAGE 1-B



PAGE 1-C



PAGE 1-D

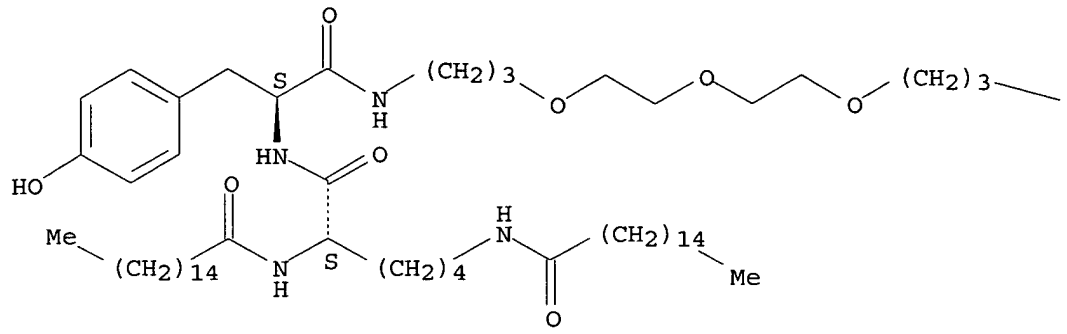


IT **380605-80-1P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of **amphiphilic** peptidyl (oxo)aldehydes (Erratum))
RN 380605-80-1 CAPLUS
CN Glycinamide, N2,N6-bis(1-oxohexadecyl)-L-lysyl-L-tyrosyl-19-amino-5-oxo-3,10,13,16-tetraoxa-6-azanonadecanoyl-N-[3-[(oxoacetyl)amino]propyl]-

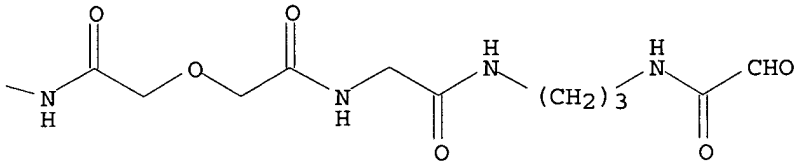
(9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

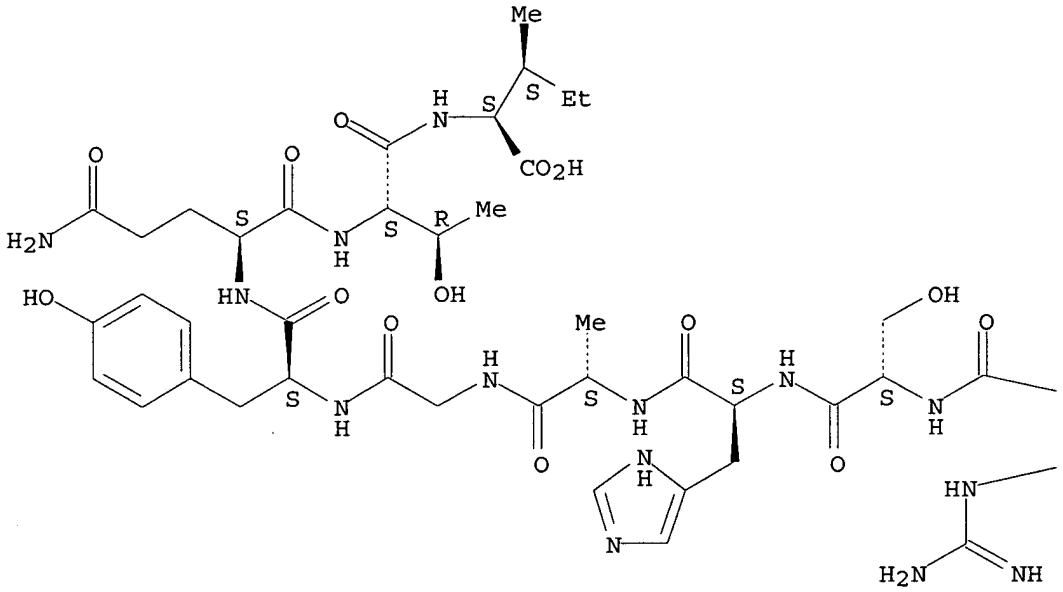


L146 ANSWER 27 OF 57 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:674523 CAPLUS
DOCUMENT NUMBER: 136:37929
TITLE: A novel family of **amphiphilic** α-oxo aldehydes for the site-specific modification of peptides by two palmitoyl groups in **solution** or in liposome suspensions
AUTHOR(S): Bourel-Bonnet, L.; Gras-Masse, H.; Melnyk, O.
CORPORATE SOURCE: Institut de Biologie de Lille, Institut Pasteur de Lille et Universite de Lille 2, UMR 8525 CNRS, Lille, 59021, Fr.
SOURCE: Tetrahedron Letters (2001), 42(39), 6851-6853
CODEN: TELEAY; ISSN: 0040-4039
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 136:37929
ED Entered STN: 14 Sep 2001
AB Two amphiphilic α-oxo aldehydes were synthesized using solid-phase methodologies and evaluated for their ability to ligate with α-hydrazino acetyl peptides both in solution and when inserted into the lipidic bilayer of liposomes.
CC 34-3 (Amino Acids, Peptides, and Proteins)
Section cross-reference(s): 6
ST oxoaldehyde palmitoyl peptide **amphiphilic** prepn; hydrazone ligation hydrazinoacetylpeptide oxoaldehyde peptide liposome bilayer
IT Liposomes
Peptide coupling
(hydrazone ligation of **amphiphilic** peptidyl (oxo)aldehydes

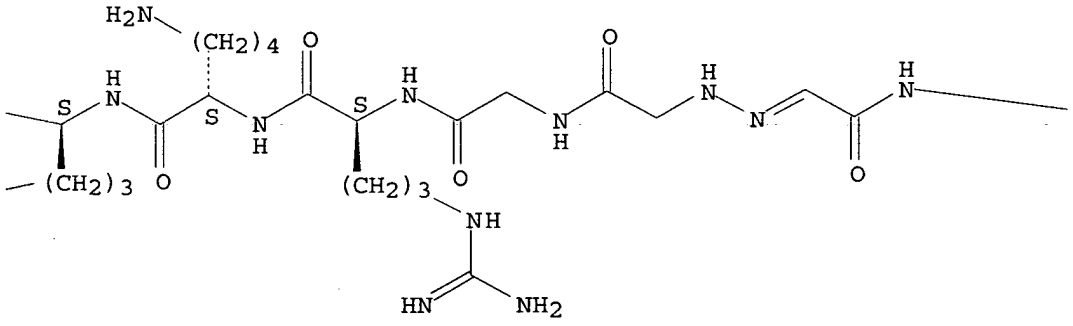
with hydrazino-acetyl peptides in liposome bilayer)
IT Aldehydes, preparation
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(oxo, peptidyl; preparation of **amphiphilic** peptidyl (oxo)aldehydes)
IT Hydrazones
RL: SPN (Synthetic preparation); PREP (Preparation)
(peptidyl; hydrazone ligation of **amphiphilic** peptidyl (oxo)aldehydes with hydrazino-acetyl peptides)
IT Lipopeptides
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of **amphiphilic** peptidyl (oxo)aldehydes)
IT 380605-82-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(control peptide; hydrazone ligation of **amphiphilic** peptidyl (oxo)aldehydes with hydrazino-acetyl peptides)
IT 326811-05-6 380605-81-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrazone ligation of **amphiphilic** peptidyl (oxo)aldehydes with hydrazino-acetyl peptides)
IT **380605-83-4P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(hydrazone ligation of **amphiphilic** peptidyl (oxo)aldehydes with hydrazino-acetyl peptides)
IT 57-10-3, Hexadecanoic acid, reactions 4246-51-9 4480-83-5, 1,4-Dioxane-2,6-dione 29022-11-5, Fmoc-Gly-OH 71989-26-9 71989-38-3 78081-87-5 351890-51-2D, resin bound
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of **amphiphilic** peptidyl (oxo)aldehydes)
IT 303157-52-0P **380605-80-1P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of **amphiphilic** peptidyl (oxo)aldehydes)
IT **380605-83-4P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(hydrazone ligation of **amphiphilic** peptidyl (oxo)aldehydes with hydrazino-acetyl peptides)
RN 380605-83-4 CAPLUS
CN L-Isoleucine, N2,N6-bis(1-oxohexadecyl)-L-lysyl-L-tyrosyl-19-amino-5-oxo-3,10,13,16-tetraoxa-6-azanonadecanoylglycyl[[2-[(3-aminopropyl)amino]-2-oxoethylidene]hydrazino]acetylglycyl-L-arginyl-L-lysyl-L-arginyl-L-seryl-L-histidyl-L-alanylglycyl-L-tyrosyl-L-glutaminyl-L-threonyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.
Double bond geometry unknown.

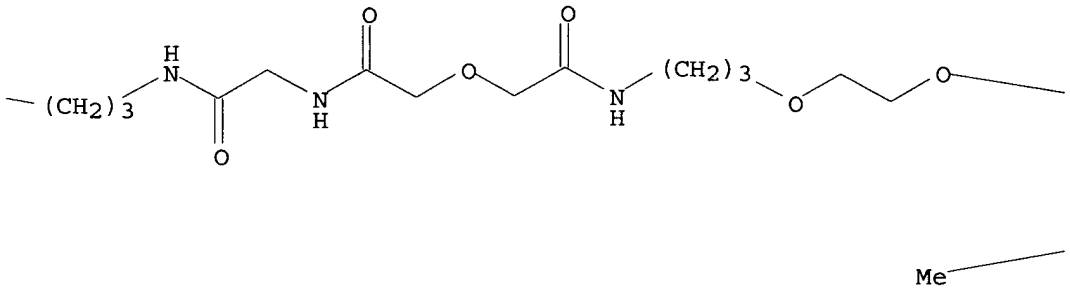
PAGE 1-A



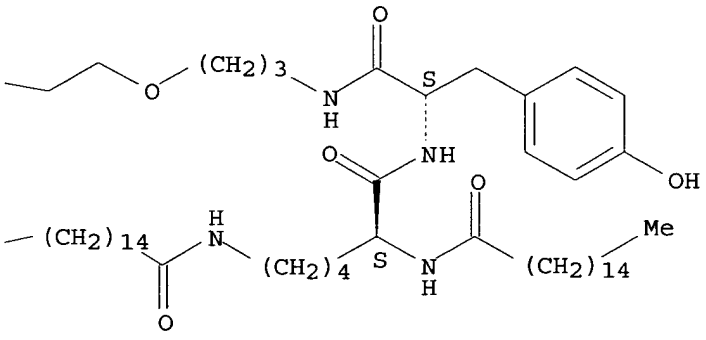
PAGE 1-B



PAGE 1-C



PAGE 1-D

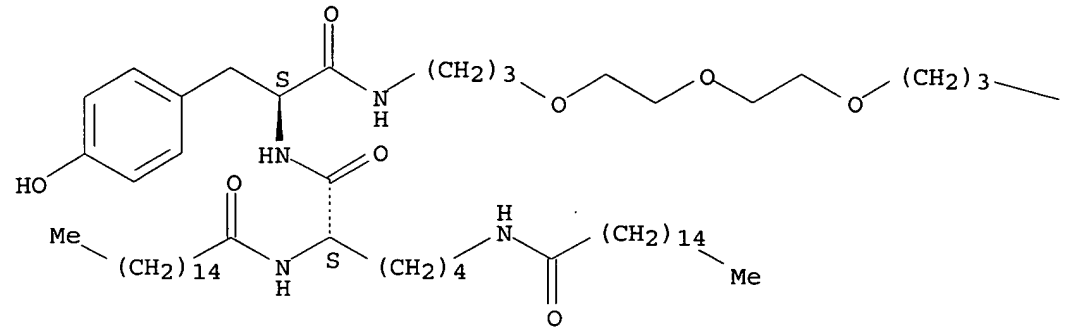


IT **380605-80-1P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of **amphiphilic** peptidyl (oxo)aldehydes)
RN 380605-80-1 CAPLUS
CN Glycinamide, N2,N6-bis(1-oxohexadecyl)-L-lysyl-L-tyrosyl-19-amino-5-oxo-3,10,13,16-tetraoxa-6-azanonadecanoyl-N-[3-[(oxoacetyl)amino]propyl]-

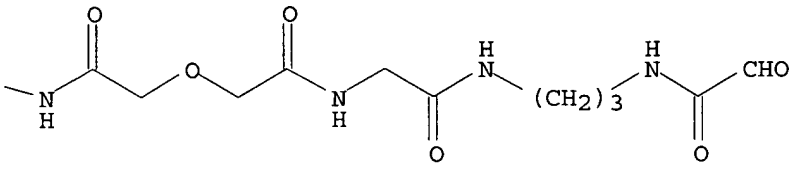
(9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L146 ANSWER 28 OF 57 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:752313 CAPLUS
DOCUMENT NUMBER: 134:56924
TITLE: Section 4 New aspects of surfactants: Formation of high-axial-ratio microstructures from sugar-, peptide-, and nucleobase-based bolaamphiphiles
AUTHOR(S): Shimizu, Toshimi
CORPORATE SOURCE: Dept. of Organic Materials, National Institute of Materials and Chemical Research, Ibaraki-ken, Tsukuba-shi, Higashi, 305-8565, Japan
SOURCE: Nihon Yukagakkaishi (2000), 49(10), 1261-1270
CODEN: NIYUFC; ISSN: 1341-8327
PUBLISHER: Nihon Yukagaku Gakkai
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Japanese
ED Entered STN: 26 Oct 2000
AB A review with 40 refs. A variety of bola-form amphiphiles (bolaamphiphiles), in which sugar, peptide, or nucleobase moieties are connected to both **ends** of a **hydrocarbon** spacer, were synthesized. These compds. self-assembled in aqueous solution to form thermally stable, nanometer-scale high- axial-ratio microstructures (HARMs), such as helical fibers, tubular fibers, and double-helical ropes. Size distribution of the structures was essentially the same as that of self-assembled fibrous structures like collagen fibers, flagella, and actin fibers and morphol. was found to strongly depend on chain length and even-odd carbon number of used oligomethylene spacers. Mol. arrangement and

hydrogen bond networks within HARMs were investigated by FT-IR, XRD, and AFM. Interlayer and intralayer interactions of the monolayers were noted to be major determinants of fiber morphol. HARMs are constructed hierarchically in a manner similar to biol. structures.

CC 34-0 (Amino Acids, Peptides, and Proteins)
Section cross-reference(s): 33

IT **Amphiphiles**
(bolaform; self-assembled of surfactants in formation of high-axial-ratio microstructures from hydrocarbon spacer-linked sugar-, **peptide**-, and nucleobase-based bolaamphiphiles)

L146 ANSWER 29 OF 57 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:593878 CAPLUS
DOCUMENT NUMBER: 133:267148
TITLE: **Peptide-amphiphile** induction of α-helical structures
AUTHOR(S): Forns, Pilar; Fields, Gregg B.
CORPORATE SOURCE: Department of Chemistry & Biochemistry, Florida Atlantic University, Boca Raton, FL, 33431-0991, USA
SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2000), 41(2), 1152-1153
CODEN: ACPPAY; ISSN: 0032-3934
PUBLISHER: American Chemical Society, Division of Polymer Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 27 Aug 2000
AB The authors have previously demonstrated that attachment of monoalkyl or dialkyl hydrocarbon chains onto peptides can exert a significant influence on triple-helical supersecondary structure formation and stabilization. In the present study, CD spectroscopy has been used to characterize peptide-amphiphiles for formation and stabilization of α-helical secondary structure. A previously described model system for α-helixes was chosen in which a repeating peptide heptad sequence (EIEALKA) forms a distinct structure at a chain length of 23 residues. It was determined that (i) hydrocarbon chains do not disrupt the α-helical structure of the peptides tested, (ii) monoalkyl chains increase the thermostability of an α-helix, (iii) alkyl chains induce α-helical conformation in the smaller peptide, EALKAEIEALKA-NH2. Size-exclusion chromatog. results indicated that the extent of peptide-amphiphile aggregation is directly related to the alkyl chain length. Therefore, **alkyl "tails"** may be useful as a general template for induction of protein-like secondary and tertiary structures.
CC 34-3 (Amino Acids, Peptides, and Proteins)
ST **peptide amphiphile** alpha helix induction alkyl chain
IT Chemical chains
α-Helix
(**alkyl "tails"** are useful as general template for induction of protein-like secondary and tertiary structures in small peptides)
IT Peptides, properties
RL: PRP (Properties)
(**alkyl "tails"** are useful as general template for induction of protein-like secondary and tertiary structures in small peptides)
IT 296783-00-1 296783-02-3 296783-05-6 296783-07-8 296783-11-4
296783-13-6 296783-14-7 296783-17-0 296783-18-1 296783-20-5
296783-22-7
RL: PRP (Properties)

(**alkyl "tails"** are useful as general template for induction of protein-like secondary and tertiary structures in small peptides)
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L146 ANSWER 30 OF 57 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:894779 CAPLUS
DOCUMENT NUMBER: 135:73038
TITLE: Relating **peptide** presentation and biological response through supported films of **peptide amphiphiles**
AUTHOR(S): Ochsenhirt, Sarah E.; Dillow, Angela K.; Kokkoli, Effrosini; McCarthy, James B.; Fields, Gregg B.; Tirrell, Matt
CORPORATE SOURCE: Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, 55455, USA
SOURCE: Peptides for the New Millennium, Proceedings of the American Peptide Symposium, 16th, Minneapolis, MN, United States, June 26-July 1, 1999 (2000), Meeting Date 1999, 628-629. Editor(s): Fields, Gregg B.; Tam, James P.; Barany, George. Kluwer Academic Publishers: Dordrecht, Neth.
CODEN: 69ATHX
DOCUMENT TYPE: Conference
LANGUAGE: English
ED Entered STN: 21 Dec 2000
AB A project is being conducted to understand how the secondary structure of a peptide ligand influences cell behavior. Accordingly, model surfaces upon which the surface d., organization, and presentation of the peptide can be controlled are required. To accomplish this, a series of peptide amphiphiles that have **hydrocarbon tails** and head groups that contain RGD (Arg-Gly-Asp) or GRGDSP (Gly-Arg-Gly-Asp-Ser-Pro) peptides, were synthesized. The first generation of fibronectin based peptide amphiphiles contained only the RGD tripeptide. In one variation, a single dialkyl tail was attached to the peptide through the N-terminus of arginine (C-RGD), while in the other, dialkyl tails were attached through the N-terminus of arginine and the C-terminus of aspartate (C-RGD-C). Both variations were synthesized using solution phase peptide chemical The small size of the peptide allowed the deposited monolayers to be analyzed with FTIR. At high peptide concentration, the C-RGD version had a highly ordered head group with strong hydrogen bonding, which destabilized the monolayers. No cell spreading was observed The looped C-RGD-C formed stable monolayers for all peptide concns. The C-RGD-C version revealed cell spreading based on specific recognition of the RGD sequence. Thus, the presentation of the simple tripeptide at an interface influences cell adhesion.
CC 6-6 (General Biochemistry)
Section cross-reference(s): 34
ST RGD **peptide amphiphile** monolayer cell spreading adhesion
IT Spreading
(biol.; monolayer properties of RGD-containing **amphiphilic peptide** derivs. in relation to cell spreading and adhesion)
IT RGD **peptides**
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(derivs.; monolayer properties of RGD-containing **amphiphilic peptide** derivs. in relation to cell spreading and adhesion)

IT Cell adhesion
Hydrogen bond
(monolayer properties of RGD-containing **amphiphilic peptide** derivs. in relation to cell spreading and adhesion)
IT Membrane, biological
(monolayer; monolayer properties of RGD-containing **amphiphilic peptide** derivs. in relation to cell spreading and adhesion)
IT Secondary structure
(protein; monolayer properties of RGD-containing **amphiphilic peptide** derivs. in relation to cell spreading and adhesion)
IT 91037-75-1D, **amphiphilic peptide** derivs. containing
99896-85-2D, **amphiphilic peptide** derivs. containing
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(monolayer properties of RGD-containing **amphiphilic peptide** derivs. in relation to cell spreading and adhesion)
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L146 ANSWER 31 OF 57 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:334764 CAPLUS
TITLE: **Peptide-amphiphile** induction of α-helical and triple-helical structures.
AUTHOR(S): Fields, Gregg B.
CORPORATE SOURCE: Department of Chemistry & Biochemistry, Florida Atlantic University, Boca Raton, FL, 33431, USA
SOURCE: Book of Abstracts, 219th ACS National Meeting, San Francisco, CA, March 26-30, 2000 (2000), POLY-575. American Chemical Society: Washington, D. C.
CODEN: 69CLAC
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
ED Entered STN: 19 May 2000
AB Protein-like mol. architecture has often been created by utilizing the ability of peptides to self-assemble and form higher order three-dimensional structures. Unfortunately, peptide self-assembly is not a particularly easy process to regulate. One approach for controlled peptide assembly is to incorporate moieties on the end of peptide chains, and use properties of these moieties to drive peptides to interact in a specific fashion. We have attached pseudo-lipids onto N-alpha-amino groups of peptide chains to create "peptide-amphiphiles." The alignment of amphiphilic compds. at the lipid-solvent interface is used to facilitate peptide alignment and structure initiation and propagation. CD and NMR spectroscopies have been used to examine the secondary or super-secondary structures of a series of peptides both with and without lipophilic **hydrocarbon "tails."** Overall, the tails (a) do not disrupt the structures of the peptide "head groups," but in fact enhance structure thermal stability and (b) significantly reduce the necessary length for a peptide to have predominantly an alpha-helical or triple-helical structure in solution The extent of peptide-amphiphile aggregation appears to be correlated to **hydrocarbon tail** length. The peptide-amphiphiles described here provide a simple approach for building stable protein structural motifs using peptide head groups, and have potential as therapeutics and for improving biomaterial biocompatibility.

L146 ANSWER 32 OF 57 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:798170 CAPLUS
TITLE: **Peptide-amphiphile** induction of α-helical structures.

AUTHOR(S): Forns, Pilar; Fields, Gregg B.
CORPORATE SOURCE: Laboratori Quimica Organica, Facultat de Farmacia, Universitat de Barcelona, Barcelona, Spain
SOURCE: Abstracts of Papers, 220th ACS National Meeting, Washington, DC, United States, August 20-24, 2000 (2000) POLY-080
CODEN: 69FZC3
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal; Meeting Abstract
LANGUAGE: English
ED Entered STN: 14 Nov 2000
AB Protein-like mol. architecture has often been created by utilizing the ability of peptides to self-assemble and form higher order three-dimensional structures. Unfortunately, peptide self-assembly is not a particularly easy process to regulate. One approach for controlled peptide assembly is to incorporate moieties on the end of peptide chains, and use properties of these moieties to drive peptides to interact in a specific fashion. We have attached pseudo-lipids onto N-alpha-amino groups of peptide chains to create "peptide-amphiphiles." The alignment of amphiphilic compds. at the lipid-solvent interface is used to facilitate peptide alignment and structure initiation and propagation. CD and NMR spectroscopies have been used to examine the secondary or super-secondary structures of a series of peptides both with and without lipophilic **hydrocarbon "tails."** Overall, the tails (a) do not disrupt the structures of the peptide "head groups," but in fact enhance structure thermal stability and (b) significantly reduce the necessary length for a peptide to have predominantly an a-helical or triple-helical structure in solution The extent of peptide-amphiphile aggregation appears to be correlated to **hydrocarbon tail** length. The peptide-amphiphiles described here provide a simple approach for building stable protein structural motifs using peptide head groups, and have potential as therapeutics and for improving biomaterial biocompatibility.

L146 ANSWER 33 OF 57 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1998:711485 CAPLUS
DOCUMENT NUMBER: 130:81844
TITLE: **Solution** conformational analysis of **amphiphilic** helical, synthetic analogs of the lipopeptaibol trichogin GA IV
AUTHOR(S): Monaco, V.; Locardi, E.; Formaggio, F.; Crisma, M.; Mammi, S.; Peggion, E.; Toniolo, C.; Rebuffat, S.; Bodo, B.
CORPORATE SOURCE: Biopolymer Research Center, CNR, Department of Organic Chemistry, University of Padova, Padua, 35131, Italy
SOURCE: Journal of Peptide Research (1998), 52(4), 261-272
CODEN: JPERFA; ISSN: 1397-002X
PUBLISHER: Munksgaard International Publishers Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 10 Nov 1998
AB The step-by-step synthesis by solution methods of the [Ser2,5,6,9, Leu-OMe11] analog of trichogin GA IV is described. The four Ser residues have been incorporated into the sequence as replacements of the naturally occurring Gly residues to increase the amphiphilicity of the 3D-structure of the lipopeptaibol. A detailed solution conformational anal. has been performed on this undecapeptide and its prototypical [Leu-OMe11] trichogin GA IV analog using FT-IR absorption and CD spectroscopies, and two-dimensional NMR under a variety of exptl. conditions, including a membrane-mimetic environment. Both peptides adopt a mixed 310/α-helical structure, which in the micellar system was found to be less flexible for the

Ser-containing analog. For both analogs permeability measurements revealed membrane-modifying properties comparable to those of the natural lipopeptaibol.

CC 34-3 (Amino Acids, Peptides, and Proteins)
Section cross-reference(s): 22, 66

IT Conformation
(preparation and **solution** conformation of serine-containing analogs of lipopeptaibol trichogin GA IV)

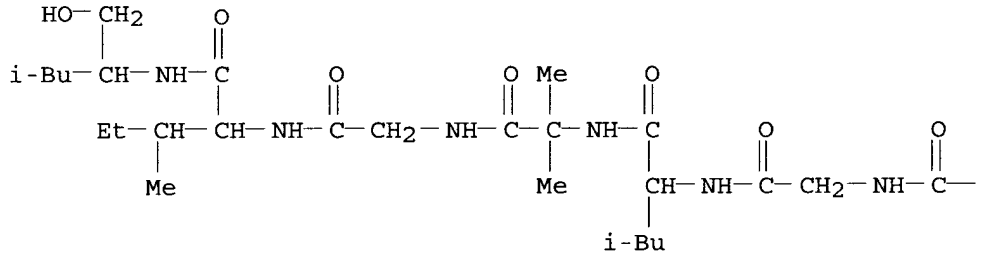
IT **138531-93-8DP**, Trichogin GA IV, serine-containing analog
184370-45-4P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and **solution** conformation of serine-containing analogs of lipopeptaibol trichogin GA IV)

IT 218599-53-2P 218599-54-3P 218599-55-4P 218599-56-5P 218599-57-6P
218599-58-7P 218599-59-8P 218599-60-1P 218599-61-2P
218599-62-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and **solution** conformation of serine-containing analogs of lipopeptaibol trichogin GA IV)

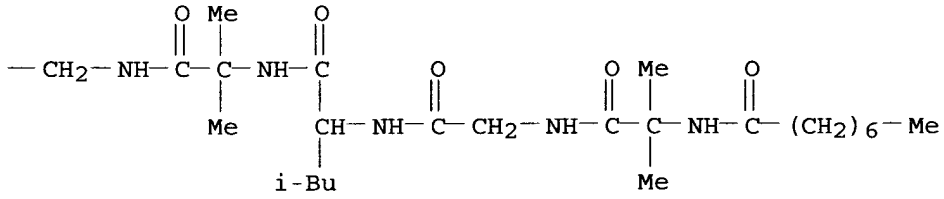
IT **138531-93-8DP**, Trichogin GA IV, serine-containing analog
184370-45-4P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and **solution** conformation of serine-containing analogs of lipopeptaibol trichogin GA IV)

RN 138531-93-8 CAPLUS
CN Trichogin A IV (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

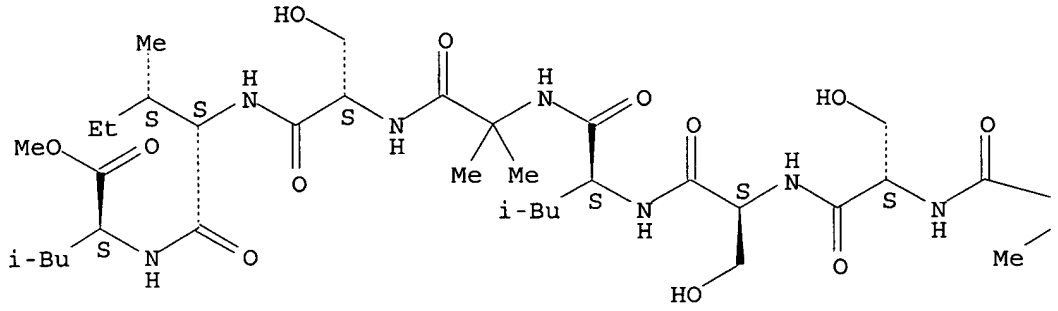


RN 184370-45-4 CAPLUS
CN L-Leucine, 2-methyl-N-(1-oxooctyl)alanyl-L-seryl-L-leucyl-2-methylalanyl-L-

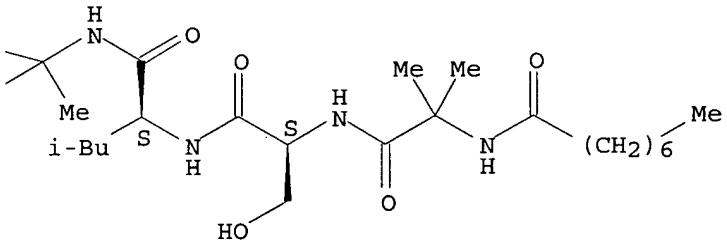
seryl-L-seryl-L-leucyl-2-methylalanyl-L-seryl-L-isoleucyl-, methyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).

PAGE 1-A



PAGE 1-B



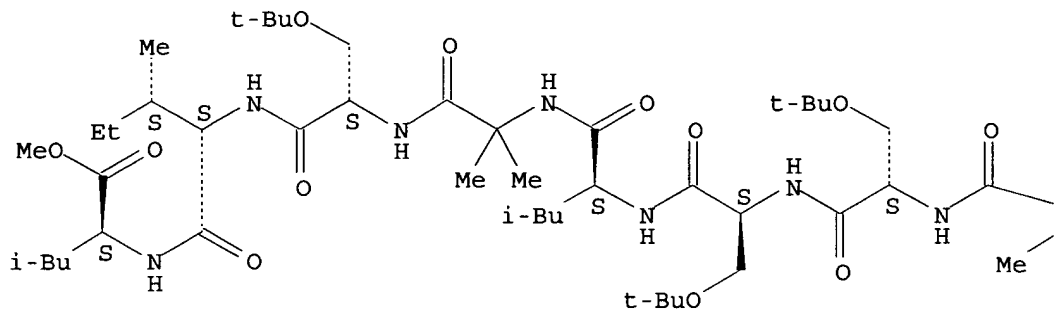
IT **218599-62-3P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and **solution** conformation of serine-containing analogs of lipopeptaibol trichogin GA IV)

RN 218599-62-3 CAPLUS

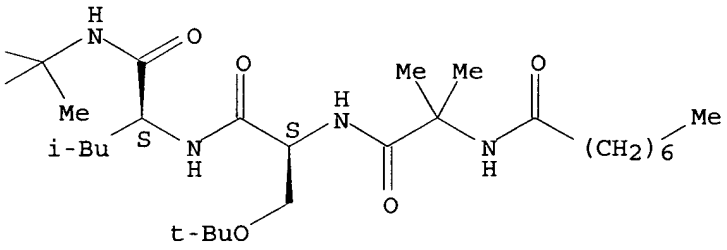
CN L-Leucine, 2-methyl-N-(1-oxooctyl)alanyl-O-(1,1-dimethylethyl)-L-seryl-L-leucyl-2-methylalanyl-O-(1,1-dimethylethyl)-L-seryl-O-(1,1-dimethylethyl)-L-seryl-L-leucyl-2-methylalanyl-O-(1,1-dimethylethyl)-L-seryl-L-isoleucyl-, methyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).

PAGE 1-A



PAGE 1-B



REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L146 ANSWER 34 OF 57 JICST-EPlus COPYRIGHT 2005 JST on STN
ACCESSION NUMBER: 1030640654 JICST-EPlus
TITLE: Modification of Mesoporous Silica Interior by **Peptide** Residues Using Condensing **Amphiphile** Template
AUTHOR: ZHANG Q; ARIGA K; OKABE A; AIDA T
CORPORATE SOURCE: Jst-erato
SOURCE: Nippon Kagakkai Koen Yokoshu, (2003) vol. 83rd, no. 1, pp. 649. Journal Code: S0493A (Fig. 1)
ISSN: 0285-7626
PUB. COUNTRY: Japan
DOCUMENT TYPE: Conference; Short Communication
LANGUAGE: English
STATUS: New
ABSTRACT:
As a novel technique for modification of mesoporous silicates, condensing amphiphile template method was proposed. Surfactants having dialkokysilane group and peptide residues were used as templates for the sol-gel reaction. The surfactant structures were first covalently immobilized onto the silica

framework, and **alkyl tails** were selectively removed by subsequent hydrolysis. This method provided mesoporous silica homogeneously immobilizing peptide residues, and functional application of the obtained materials was also examined. (author abst.)

CLASSIFICATION: CD01030Z; CF02040X (546-36+546.3-31; 544.412.2-145:547)
CONTROLLED TERM: silica; porous medium; surfactant; amphiphilic; hydrolysis; chemical modification; pore structure; sol-gel process; effect
BROADER TERM: silicon dioxide; silicon oxide; silicon compound; carbon group element compound; oxide; chalcogenide; oxygen group element compound; oxygen compound; porous object; property; solvolysis; decomposition; decomposition reaction; chemical reaction; structure
SUPPLEMENTARY TERM: template effect

L146 ANSWER 35 OF 57 PASCAL COPYRIGHT 2005 INIST-CNRS. ALL RIGHTS RESERVED.
on STN DUPLICATE 2
ACCESSION NUMBER: 2005-0351267 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 2005 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Preparation of shell cross-linked nano-objects from hybrid-peptide block copolymers
AUTHOR: RODRIGUEZ-HERNANDEZ Juan; BABIN Jerome; ZAPPONE Bruno; LECOMMANDOUX Sebastien
CORPORATE SOURCE: Laboratoire de Chimie des Polymeres Organiques (LCPO-UMR5629), ENSCPB-University Bordeaux 1, 16, Av. Pey Berland, 33607 Pessac, France; Centre de Recherche Paul Pascal, CNRS-University Bordeaux 1, Av. Schweitzer, 33600 Pessac, France
SOURCE: Biomacromolecules, (2005), 6(4), 2213-2220, 33 refs. ISSN: 1525-7797
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: INIST-27371, 354000138586190530
ABSTRACT: Supramolecular structures formed by self-assembly of diblock copolymers in **solution** are stable over restricted environmental conditions: concentration, temperature, pH, or ion strength among others. To enlarge their domain of application, it appears necessary to develop stabilization strategies. We report here different strategies to stabilize the shell of micelles formed by self-assembly of **amphiphilic** polydiene-b-**polypeptide** diblock copolymers. For this purpose, **covalent** bonds can be formed between either amine or carboxylic acid groups distributed along the soluble peptide block and a cross-linking agent that contains respectively aldehyde or amine functions. Shell stabilization affords systems with unique properties that combine three main advantages: shape persistence, control of the porosity, and stimuli-responsive behavior. The **covalent** capture of such macromolecular objects has been studied by light scattering, AFM, and conductimetry measurements.
CLASSIFICATION CODE: 001D09F02; Applied sciences; Physicochemistry of polymers, Macromolecular chemistry, Materials science; Synthetic biopolymers

CONTROLLED TERM: Lysine copolymer; Glutamic acid copolymer; Diblock copolymer; Isoprene copolymer; Butadiene copolymer; Amphiphilic polymer; Aqueous **solution**; Micellar **solution**; Stabilization; Nanostructure; Crosslinking; Chemoselectivity; Diamine; Glutaral; Crosslinked copolymer; Adsorbed state; Surface topography; Hydrodynamic radius; Solvent effect; Mixed solvent; Experimental study

BROADER TERM: Aminoacid copolymer; Diene copolymer

L146 ANSWER 36 OF 57 on STN PASCAL COPYRIGHT 2005 INIST-CNRS. ALL RIGHTS RESERVED. DUPLICATE 7

ACCESSION NUMBER: 2003-0313493 PASCAL

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TITLE (IN ENGLISH): Characterization of **peptide-amphiphiles** possessing cellular activation sequences

AUTHOR: MALKAR Navdeep B.; LAUER-FIELDS Janelle L.; JUSKA Darius; FIELDS Gregg B.

CORPORATE SOURCE: Department of Chemistry & Biochemistry, Florida Atlantic University, 777 Glades Road, Boca Raton, Florida 33431-0991, United States

SOURCE: Biomacromolecules, (2003), 4(3), 518-528, 71 refs. ISSN: 1525-7797

DOCUMENT TYPE: Journal

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: United States

LANGUAGE: English

AVAILABILITY: INIST-27371, 354000118201160090

ABSTRACT: Numerous approaches have been described for modifying biomaterials to incorporate extracellular matrix components. "**Peptide-amphiphiles**", whereby monoalkyl hydrocarbon chains are **covalently** linked to peptide sequences, have been shown previously to (a) form specific molecular architecture with enhanced stability and (b) promote cell adhesion, spreading, and signaling. The present study has examined the use of chimeric **peptide-amphiphiles** for inducing protein-like structures and **peptide-amphiphile** mixtures for enhancing surface bioactivity. The α-helical propensity of a 21 residue peptide, incorporating the SPARC.sub.1.sub.1.sub.9.sub.-.sub.1.sub.2.sub.2 angiogenesis-inducing sequence and either unmodified or acylated with a C.sub.6, C.sub.1.sub.0, C.sub.1.sub.4, C.sub.1.sub.6, C.sub.1.sub.8, C.sub.1.sub.8.sub.:.sub.1, or C.sub.1.sub.8.sub.:.sub.1.sub.-.sub.O.sub.H monoalkyl hydrocarbon chain, has been examined. **Peptide** and **peptide-amphiphile** structures were characterized by circular dichroism and one- and two-dimensional NMR spectroscopic techniques. The 21 residue peptide alone does not form a distinct structure in **solution**, whereas N-terminal acylation by monoalkyl hydrocarbon chains results in the 21 residue **peptide-amphiphile** adopting a predominantly α-helical structure in **solution.** The thermal stability of the α-helix increases with increasing hydrocarbon

chain length. The SPARC.sub.1.sub.1.sub.9.sub.-.sub.1.sub.2.sub.2 **peptide-amphiphiles** were then screened for promotion of endothelial cell adhesion and spreading. The greatest activity was achieved by using a mixture of the α-helical SPARC.sub.1.sub.1.sub.9.sub.-.sub.1.sub.2.sub.2 **peptide-amphiphile**, a triple-helical **peptide-amphiphile** incorporating the α2β1 integrin bindng site from type I collagen, and a pseudolipid. The pseudolipid is most likely required for a spatial distribution of the **peptide-amphiphiles** that allows for optimal cellular interactions. Overall, we have found that incorporation of bioactive sequences within **peptide-amphiphiles** results in the induction of an ordered structure of the bioactive sequence and that mixtures of **peptide-amphiphiles** can be used to promote endothelial cell behaviors comparable to extracellular matrix components.

CLASSIFICATION CODE: 002A04B; Life sciences; Biological sciences
CONTROLLED TERM: Cell biology; Characterization; Peptides

L146 ANSWER 37 OF 57 on STN PASCAL COPYRIGHT 2005 INIST-CNRS. ALL RIGHTS RESERVED.

ACCESSION NUMBER: 2005-0245647 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 2005 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Encapsulation of carbon nanotubes by self-assembling **peptide amphiphiles**
AUTHOR: ARNOLD Michael S.; GULER Mustafa O.; HERSAM Mark C.; STUPP Samuel I.
CORPORATE SOURCE: Department of Materials Science and Engineering, Northwestern University, Evanston, Illinois 60208, United States; Department of Chemistry, Northwestern University, Evanston, Illinois 60208, United States; Feinberg School of Medicine, Northwestern University, Chicago, Illinois, United States
SOURCE: Langmuir, (2005), 21(10), 4705-4709, 39 refs.
ISSN: 0743-7463 CODEN: LANGD5
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: INIST-20642, 354000129998020650
ABSTRACT: We demonstrate the dispersion and noncovalent functionalization of carbon nanotubes in water using **peptide amphiphiles** each consisting of a short hydrophobic **alkyl tail** coupled to a more hydrophilic peptide sequence. The assembly of **peptide amphiphile** molecules on the surfaces of carbon nanotubes adds biofunctionality to these one-dimensional conductors and simultaneously eliminates the hydrophobic nanotube-water interface, thus dispersing them in the aqueous medium. This should occur without the degradation of their structural, electronic, and optical properties caused by covalent functionalization and without the need for specific

peptide sequences designed to bind with nanotube surfaces. The encapsulation by **peptide amphiphiles** is confirmed using transmission electron microscopy and optical absorbance spectroscopy and may have significant future applications in biosensing or medicine.

CLASSIFICATION CODE: 001C01; Chemistry; General chemistry, Physical chemistry

CONTROLLED TERM: Encapsulation; Carbon nanotubes; Peptides; Dispersion; Functionalization; Water; Hydrophobicity; Alkyl; Interface; Aqueous medium; Degradation; Electronic properties; Optical properties; Design; Transmission electron microscopy; Absorbance; Medicine

L146 ANSWER 38 OF 57 PASCAL COPYRIGHT 2005 INIST-CNRS. ALL RIGHTS RESERVED. on STN

ACCESSION NUMBER: 2005-0169349 PASCAL

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TITLE (IN ENGLISH): Sequence-specific binding of DNA to liposomes containing Di-alkyl **peptide** nucleic acid (PNA) **amphiphiles**

AUTHOR: MARQUES Bruno F.; SCHNEIDER James W.

CORPORATE SOURCE: Department of Chemical Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania 15213-3890, United States

SOURCE: Langmuir, (2005), 21(6), 2488-2494, 40 refs. ISSN: 0743-7463 CODEN: LANGD5

DOCUMENT TYPE: Journal

BIBLIOGRAPHIC LEVEL: Analytic

COUNTRY: United States

LANGUAGE: English

AVAILABILITY: INIST-20642, 354000126878370540

ABSTRACT: We present a method to **covalently** attach peptide nucleic acid (PNA) to liposomes by conjugation of PNA peptide to **charged** amino acids and synthetic di-alkyl lipids ("PNA amphiphile," PNAA) followed by coextrusion with disteroylphosphatidylcholine (DSPC) and cholesterol. Attachment of four Glu residues and two ethylene oxide spacers to the PNAA was required to confer proper hydration for extrusion and presentation for DNA hybridization. The extent of DNA oligomer binding to 10-mer PNAA liposomes was assessed using capillary zone electrophoresis. Nearly all PNAs on the liposome surface are complexed with a stoichiometric amount of complementary DNA 10-mers after 3-h incubation in pH 8.0 Tris buffer. No binding to PNAA liposomes was observed using DNA 10-mers with a single mismatch. Longer DNA showed a greatly attenuated binding efficiency, likely because of electrostatic repulsion between the PNAA liposome double layer and the DNA backbone. Langmuir isotherms of PNAA:DSPC:chol monolayers indicate miscibility of these components at the compositions used for liposome preparation. PNAA liposomes preserve the high sequence-selectivity of PNAs and emerge as a useful sequence tag for highly sensitive bioanalytical devices.

CLASSIFICATION CODE: 001C01J09; Chemistry; General chemistry, Physical chemistry; Colloidal state, Dispersed states

CONTROLLED TERM: Binding; DNA; Liposome; Alkyl; Peptide nucleic acid; Aminoacid; Lipids; Cholesterol; Residue; Ethylene; Oxides; Hydration; Extrusion; Hybridization; Oligomer; Capillary electrophoresis; Surface complex; pH; Efficiency; Electrostatic repulsion; Langmuir isotherm; Monolayer; Miscibility; Composition; Preparation; Selectivity; Device

L146 ANSWER 39 OF 57 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN

ACCESSION NUMBER: 2004:135150 BIOSIS
DOCUMENT NUMBER: PREV200400137253
TITLE: Atomic force microscopy investigations of peptide-membrane interactions.
AUTHOR(S): Rigby-Singleton, Shellie [Reprint Author]; Davies, Martyn [Reprint Author]; O'Shea, Paul; Allen, Stephanie [Reprint Author]
CORPORATE SOURCE: School of Pharmacy, University of Nottingham, Nottingham, UK
SOURCE: Biophysical Journal, (January 2004) Vol. 86, No. 1, pp. 558a-559a. print.
Meeting Info.: 48th Annual Meeting of the Biophysical Society. Baltimore, MD, USA. February 14-18, 2004. Biophysical Society.
ISSN: 0006-3495 (ISSN print).
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
LANGUAGE: English
ENTRY DATE: Entered STN: 10 Mar 2004
Last Updated on STN: 10 Mar 2004

ABSTRACT:Signal sequence peptides are paramount to the protein transport system. They are short n-terminal extensions of secreted or membrane proteins that facilitate the targeting, binding and insertion processes of the proteins to the membranes. Using atomic force microscopy (AFM) we have not only visualised the interaction of signal sequence peptides with fluid-state supported model membranes, but have also explored their unbinding dynamics. In this study, we show that the positively **charged**, **amphiphilic** alpha-helical, signal **peptide** of cytochrome c oxidase (P25) initially binds and inserts into the phosphatidylcholine (PC) bilayer. With increasing concentrations, solubilisation of the phospholipids from the bilayer occurs, creating an irregular shaped network of channels that penetrate the whole bilayer exposing the underlying support. By **covalently** attaching the peptide to a force transducer (in this case, an AFM probe) and repeatedly translating it into and out of contact with phospholipid bilayers over a range of loading rates the unbinding dynamics of the interaction were explored. Unbinding forces for the interaction between P25 and PC bilayers were found to demonstrate a weak rate dependence, characteristic of long-ranged hydrophobic interactions, potentially associated with the insertion of the peptide. The interaction of P25 with electronegative model membrane surfaces (composed of a ratio of PC 85: PS (phosphatidylserine) 15), resulted in an increase in the unbinding force as compared to an electroneutral PC bilayer. At physiological pH P25 exhibits a net positive **charge** and therefore, it seems feasible that an increase in coulombic interactions occurs between the peptide and the phosphatidylserine head groups. The potential of the AFM to elucidate peptide-membrane interactions is explored.

CONCEPT CODE: General biology - Symposia, transactions and proceedings 00520
Biochemistry studies - General 10060
Biochemistry studies - Lipids 10066
Enzymes - General and comparative studies: coenzymes

10802
INDEX TERMS: Major Concepts
Biochemistry and Molecular Biophysics; Methods and Techniques
INDEX TERMS: Chemicals & Biochemicals
cytochrome c oxidase [EC 1.9.3.1]; phosphatidylcholine; phosphatidylserine; phospholipid bilayer
INDEX TERMS: Methods & Equipment
atomic force microscopy: imaging and microscopy techniques, laboratory techniques
INDEX TERMS: Miscellaneous Descriptors
peptide-membrane interactions
REGISTRY NUMBER: 9001-16-5 (cytochrome c oxidase)
9001-16-5 (EC 1.9.3.1)

L146 ANSWER 40 OF 57 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
ACCESSION NUMBER: 1988:46693 BIOSIS
DOCUMENT NUMBER: PREV198885023552; BA85:23552
TITLE: DESIGN OF A 4-HELIX BUNDLE PROTEIN SYNTHESIS OF PEPTIDES WHICH SELF-ASSOCIATE INTO A HELICAL PROTEIN.
AUTHOR(S): HO S P [Reprint author]; DEGRADO W F
CORPORATE SOURCE: EI DU PONT NEMOURS AND CO, CENT RES DEV DEP, EXP STN, BUILD 328, WILMINGTON, DEL 19898, USA
SOURCE: Journal of the American Chemical Society, (1987) Vol. 109, No. 22, pp. 6751-6758.
CODEN: JACSAT. ISSN: 0002-7863.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: ENGLISH
ENTRY DATE: Entered STN: 9 Jan 1988
Last Updated on STN: 9 Jan 1988
ABSTRACT:An incremental synthetic approach is described for the design of a 4-helix bundle protein. On the basis of secondary structure prediction rules and model building, two **amphiphilic** 16-residue **peptides**, α1A and α1B, were designed to form α-helices that would cooperatively tetramerize (give stable 4-helix structure) in **solution** . The peptides were synthetized by chemical methods, and their ability to form stable helical tetramers was confirmed by molecular weight determinations and circular dichroism studies in the presence and absence of denaturant. The free energy of tetramerization of both peptides was determined to be on the order of -20 kcal/mol. In the second stage of the work, short peptidic links were inserted between the sequence of two α1 B peptides in an attempt to design a **covalent** cross-link between two of the helical pairs in the 4-helix bundle structure. Two peptides, α1B-Pro-α1B and α1B-Pro-Arg-Arg-α1B, were synthesized, and their tendency to form dimeric aggregates (4-helix structures) was probed. The peptide α1B-Pro-α1B was found to give trimeric aggregates rather than the expected dimeric structures. Incorporation of **charged** arginine residues in the loop achieved the desired result: the ensuing peptide, α1B-Pro-Arg-Arg-α1B, forms stable helical dimers in ***solution.***
CONCEPT CODE: Biochemistry methods - Proteins, peptides and amino acids 10054
Biochemistry studies - Proteins, peptides and amino acids 10064
Biophysics - Methods and techniques 10504
Biophysics - Molecular properties and macromolecules 10506
Metabolism - Proteins, peptides and amino acids 13012

INDEX TERMS: Major Concepts
Biochemistry and Molecular Biophysics; Metabolism

L146 ANSWER 41 OF 57 CEABA-VTB COPYRIGHT 2005 DECHEMA on STN
ACCESSION NUMBER: 2002(07):5257 CEABA-VTB FILE SEGMENT B
TITLE: Mimicking the way nature grows bone
AUTHOR: Dagani, R.
CORPORATE SOURCE: C & EN Washington, USA
SOURCE: Chemical & Engineering News (2001) 79(28), 58, 61-62
CODEN: CENEAR ISSN: 0009-2347
LANGUAGE: English
ABSTRACT: The restoration and repair of damaged human tissues have led to the use of many foreign materials. With an increased understanding of biology, biomaterials that are compatible and biodegradable are in widespread use. Such a technology can be extremely useful in bone repair where a biomimetic material behaving similar to a bone can be used for numerous applications like treatment of bone cancer, osteoporosis and other bone-related disorders. Recent work in this field has been to create bonelike nanostructures using self-assembly and mineralization. The molecule of choice was a **peptide-amphiphile** that incorporates an arginine-glycine-aspartic acid (RGD) sequence important for adhesion. It also contained a phosphoserine residue to interact with the calcium ions and direct the growth of the hydroxyapatite crystals as well as four cysteine residues to form disulfide bonds for aggregation. At the other end, opposite to the RGD sequence, was a stretch of hydrophobic residues. These molecules when placed in water were able to organize into nanofibres with the central **alkyl tails** and the outer RGD and phosphoserines. Dilute solutions of these nanofibres can form a gel, which could serve as a matrix for new bone tissue growth. On exposure to solutions of calcium and phosphate ions the mineralization of this gel matrix would occur. Such a technology can be extremely useful for studying bone development as well as therapeutics.(informindia)
CLASSIFICATION CODE: 9130 Biotechnology: Physics Chemistry, Physical chemistry, Industrial chemistry, Biochemistry
9144 Biotechnology: Cells, tissues and organs of animals
1400 Chemistry, Biochemistry, Microbiology
CONTROLLED TERM: bone; polymerization; biomineralization; biomimetic process; amphiphile; nanofibre

L146 ANSWER 42 OF 57 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN DUPLICATE 3
ACCESSION NUMBER: 2003-903329 [82] WPIDS
DOC. NO. NON-CPI: N2003-721315
DOC. NO. CPI: C2003-256798
TITLE: Nanotube composition used in devices such as scanning microscopy probes, comprises carbon nanotube and amphiphiles capable of forming self assembled nanofibers.
DERWENT CLASS: A85 E16 E36 L02 L03 S03 U11 V05
INVENTOR(S): ARNOLD, M S; MESSMSORE, B W; STUPP, S I; ZUBAREV, E R; MESSMORE, B W; MESSSMORE, B W
PATENT ASSIGNEE(S): (ARNO-I) ARNOLD M S; (MESS-I) MESSMORE B W; (STUP-I) STUPP S I; (ZUBA-I) ZUBAREV E R; (NOUN) UNIV NORTHWESTERN

COUNTRY COUNT: 103
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2003090255	A2	20031030	(200382)*	EN	36	H01L000-00
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW						
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW						
US 2004022718	A1	20040205	(200411)			B32B005-16
AU 2003226428	A1	20031103	(200438)			H01L000-00
US 6890654	B2	20050510	(200532)			B32B005-16

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003090255	A2	WO 2003-US12111	20030418
US 2004022718	A1 Provisional	US 2002-373827P	20020418
		US 2003-418474	20030418
AU 2003226428	A1	AU 2003-226428	20030418
US 6890654	B2 Provisional	US 2002-373827P	20020418
		US 2003-418474	20030418

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2003226428	A1 Based on	WO 2003090255

PRIORITY APPLN. INFO: US 2002-373827P 20020418; US 2003-418474 20030418
INT. PATENT CLASSIF.:
MAIN: B32B005-16; H01L000-00
BASIC ABSTRACT:

WO2003090255 A UPAB: 20031223
NOVELTY - A nanotube composition comprises carbon nanotube and amphiphiles capable of forming self assembled nanofibers. The amphiphiles encapsulate the carbon nanotube.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for a method of encapsulating carbon nanotube comprising combining the nanotube with the amphiphiles; and a method of manufacturing a device that incorporates carbon nanotubes comprising coating the nanotubes with amphiphiles and incorporating the encapsulated nanotubes into the device.

USE - The invention is used in devices such as scanning microscopy probes, electrical connections in integrated circuits, metal wire coated in plastic, and coated wire (claimed). It can be used in making arrays as a basis for synthesis of carbon fibers.

ADVANTAGE - The invention increases solubility of nanotubes by reversibly and non-destructively encapsulating the nanotubes in an insulating layer of self-assembled amphiphiles.

Dwg.0/7

FILE SEGMENT: CPI EPI
FIELD AVAILABILITY: AB; DCN
MANUAL CODES: CPI: A10-E01; A12-S05E; E05-U; E05-U02; L02-H04B; L03-A02B; L04-C11

EPI: S03-E02F; U11-A08B; V05-F01A5; V05-F01B3; V05-F04B6A

L146 ANSWER 43 OF 57 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN DUPLICATE 4
ACCESSION NUMBER: 2003-812718 [76] WPIDS
DOC. NO. CPI: C2003-226027
TITLE: Composition useful for immunoprotection of cell transplant comprises cylindrical fibrils having self assembled **peptide amphiphiles** and cells.
DERWENT CLASS: B04 D16
INVENTOR(S): BENIASH, E; HARTGERINK, J D; STUPP, S I
PATENT ASSIGNEE(S): (NOUN) UNIV NORTHWESTERN
COUNTRY COUNT: 103
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2003084980	A2	20031016	(200376)*	EN	19	C07K000-00
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW						
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW						
AU 2003222167	A1	20031020	(200436)			C07K000-00

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003084980	A2	WO 2003-US10051	20030402
AU 2003222167	A1	AU 2003-222167	20030402

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2003222167	A1 Based on	WO 2003084980

PRIORITY APPLN. INFO: US 2002-369638P 20020402
INT. PATENT CLASSIF.:
MAIN: C07K000-00
BASIC ABSTRACT:
WO2003084980 A UPAB: 20031125
NOVELTY - A composition (C1) comprising cylindrical fibrils having self assembled **peptide amphiphiles** and cells, is new.
DETAILED DESCRIPTION - A composition (C1) comprises cylindrical fibrils having self assembled **peptide amphiphiles** and cells. The **peptide amphiphiles** have a hydrophobic tail portion and a peptide sequence portion attached to an end of the hydrophobic portion. The peptide sequence portion comprises a flexible linker peptide region connected at first end to the hydrophobic tail portion and the second end of the flexible linker peptide region connected to an end of hydrophilic head group peptide.
INDEPENDENT CLAIMS are included for the following:
(1) a self assembled **peptide amphiphile** gel (G) comprising a gel having a network of at least one cylindrical fibril and cells within the network of fibrils of the gel;
(2) a composition (C2) comprising cells and **peptide**

amphiphile, the composition is capable of forming a gel upon exposure to physiological conditions, the cells and **peptide-amphiphiles** are in **solution**;

(3) a composition (C3) comprising a **solution** of the **peptide-amphiphile**, cells and a reagent to induce gelation of the **peptide amphiphile**;

(4) a scaffold for culturing cells comprising a network of cylindrical fibrils comprised of self assembled **peptide amphiphiles**; and cells attached to the network, the fibrils are formed by self assemble of **peptide amphiphiles** mixed in a **solution** with polyvalent **cations**;

(5) a method of growing cell in an animal involving either injecting the composition (C1) - (C3) into the animal, or forming an implantable substrate that is a gel comprised of a network of cylindrical fibrils of self assembled **peptide amphiphiles** with the composition, and implanting the substrate into the animal;

(6) making the gel involving combining a **solution** comprising **peptide amphiphiles** with a **solution** comprising cells to form a mixture that is capable of self assembly into a **peptide amphiphile** gel having the cells within the gel;

(7) forming a tissue within an animal involving mixing a **solution** of a **peptide-amphiphile** composition with dissociated cells to form a mixture, and placing the mixture into the animal to form a self-assembled **peptide amphiphile** nanofiber network having cells dispersed in it inside the animal; and

(8) a kit for formation of a gel including cells at a site in an animal comprising an injectable **solution** comprising cells and **peptide amphiphiles**, and a device for injecting the **solution** into the site in the patient where gel is to be formed.

USE - For embedding and growing living cells into a self-assembled **peptide-amphiphile** nanofiber network; for promotion of transplant engraftment to create new tissue; and for immunoprotection of cell transplants. For tissue engineering and tissue repair.

ADVANTAGE - The gel promotes engraftment and provides three-dimensional templates for new cell growth. The resulting tissue is similar in composition and histology to naturally occurring tissue. The gel combines many types of cells with the scaffold precursors, to provide enzymes to naturally degrade the scaffold and prepares scaffolds under physiological conditions.

Dwg.0/5

FILE SEGMENT: CPI
FIELD AVAILABILITY: AB; DCN
MANUAL CODES: CPI: B04-C01A; B04-F01; B04-H01; B04-H06; B04-N04A; B11-C04A; B12-M05; B14-A01; B14-C03; D05-H08; D05-H10

L146 ANSWER 44 OF 57 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN DUPLICATE 5
ACCESSION NUMBER: 2003-712608 [67] WPIDS
CROSS REFERENCE: 2005-081949 [09]
DOC. NO. CPI: C2003-195983
TITLE: Sol-gel system used for e.g. tissue engineering comprises **peptide amphiphile** compound having bioactive epitope sequence, hydrophobic component and reagent to induce gelation of amphiphile compound.
DERWENT CLASS: B04 B07
INVENTOR(S): BENIASH, E; HARTGERINK, J D; STUPP, S I
PATENT ASSIGNEE(S): (NOUN) UNIV NORTHWESTERN; (BENI-I) BENIASH E; (HART-I) HARTGERINK J D; (STUP-I) STUPP S I
COUNTRY COUNT: 30
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2003070749	A2	20030828	(200367)*	EN	27	C07K000-00
RW: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT SE SI SK TR						
W: AU CA CN JP						
US 2004001893	A1	20040101	(200402)			A61K038-17
AU 2003215280	A1	20030909	(200427)			C07K000-00

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003070749	A2	WO 2003-US4779	20030218
US 2004001893	A1 Provisional	US 2002-357228P	20020215
		US 2003-368517	20030218
AU 2003215280	A1	AU 2003-215280	20030218

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2003215280	A1 Based on	WO 2003070749

PRIORITY APPLN. INFO: US 2002-357228P 20020215; US 2003-368517 20030218

INT. PATENT CLASSIF.:
MAIN: A61K038-17; C07K000-00
SECONDARY: A61K009-14

BASIC ABSTRACT:

WO2003070749 A UPAB: 20050207

NOVELTY - Sol-gel system comprises a **peptide amphiphile** compound (A) having a bioactive epitope sequence, a hydrophobic component (B) and a reagent (C) to induce gelation of (A).

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(1) formation of a **peptide amphiphile** nanofiber which comprises placing an aqueous medium containing (A) and (B) on a surface and removing the aqueous component from the medium, or introducing a reagent to the medium to induce nanofiber formation, and

(2) a **peptide amphiphile** composition which comprises a hydrophobic group and a first (a1) and a second (a2) amino acid sequence having a first and a second bioactive epitope sequence, respectively. (a1) And (a2) have **charges** opposite to each other at a physiological pH.

USE - Used in biomedical applications e.g. in vivo or in vitro delivery of cells, drugs or therapeutic agent, in cell therapies and in tissue engineering, and to obtain cell and/or mineral growth onto a variety of hard and soft biomimetic materials for biological and non-biological applications (e.g. catalysis, photonics and electronics).

ADVANTAGE - The **peptide amphiphile** component is stable at physiological pH with or without **covalent** crosslinking. The system forms a facile self assembly of nanostructured fiber under a physiological pH condition. The system avoids contact between tissues and the material sensitive to pH change at non-physiological pH.

Dwg.0/0

FILE SEGMENT: CPI
FIELD AVAILABILITY: AB; DCN
MANUAL CODES: CPI: B04-C01A; B04-C01B; B04-C01C; B04-F01; B04-F0100E;

B05-A01B; B05-A03A; B05-A03B; B11-C04A; B11-C09

L146 ANSWER 45 OF 57 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN
ACCESSION NUMBER: 2005-445064 [45] WPIDS
DOC. NO. CPI: C2005-136339
TITLE: New self-assembling **peptide amphiphiles** , useful for controlling stem cell differentiation and for treating a tissue or injuries.
DERWENT CLASS: B04
INVENTOR(S): ANTHONY, S G; BEHANNA, H A; DONNERS, J J J M; SILVA, G A; STUPP, S I
PATENT ASSIGNEE(S): (ANTH-I) ANTHONY S G; (BEHA-I) BEHANNA H A; (DONN-I) DONNERS J J J M; (SILV-I) SILVA G A; (STUP-I) STUPP S I; (NOUN) UNIV NORTHWESTERN
COUNTRY COUNT: 108
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2005056039	A1	20050623	(200545)*	EN	45	A61K038-00
RW: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IS IT KE LS LT LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW						
W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW						
US 2005209145	A1	20050922	(200563)			A61K038-18

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2005056039	A1	WO 2004-US40550	20041206
US 2005209145	A1 Provisional	US 2003-527504P	20031205
		US 2004-5552	20041206

PRIORITY APPLN. INFO: US 2003-527504P 20031205; US 2004-5552 20041206
INT. PATENT CLASSIF.:
MAIN: A61K038-00; A61K038-18
SECONDARY: C07K014-475; C12N005-08; C12N009-48
BASIC ABSTRACT:
WO2005056039 A UPAB: 20050715
NOVELTY - An **amphiphilic peptide** compound comprising a peptide component and a hydrophobic component, the peptide component comprising a growth factor recognition product of a phage display process, the recognition product coupled to the peptide component at its N-terminus, the hydrophobic component coupled to the peptide component at its C-terminus, is new.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:
(1) a peptide composition comprising a first **amphiphilic peptide** compound, each compound comprising a growth factor recognition product of a phage display process coupled to a peptide component of the compound, the peptide component having a net **charge** at a physiological pH and coupled to a hydrophobic component at its C-terminus; and
(2) a method of using an **amphiphilic peptide**

compound to affect bioavailability of a growth factor.
ACTIVITY - Vulnerary; Osteopathic; Neuroprotective. No biological data given.
MECHANISM OF ACTION - None Given.
USE - The compound, composition, and method are useful for controlling stem cell differentiation, for reactivating dormant biological processes in vivo, or for treating a tissue or injuries, e.g. damaged bone, cartilage, spinal cord, brain tissue, or nerves.
Dwg.0/1

FILE SEGMENT: CPI
FIELD AVAILABILITY: AB; DCN
MANUAL CODES: CPI: B04-C01; B14-J01; B14-N01B; B14-N16; B14-N17B

L146 ANSWER 46 OF 57 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN
ACCESSION NUMBER: 2005-066082 [07] WPIDS
DOC. NO. CPI: C2005-023003
TITLE: New functionally reconstituted viral membrane containing adjuvant, useful for stimulating immune response and for preventing or treating a disease caused by pathogen.
DERWENT CLASS: B04 D16
INVENTOR(S): STEGMANN, A J; VAN BERKUM, J H; WILSCHUT, J C
PATENT ASSIGNEE(S): (BEST-N) BESTEWIL HOLDING BV
COUNTRY COUNT: 108
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2004110486	A1	20041223	(200507)*	EN	38	A61K039-39

RW: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2004110486	A1	WO 2004-NL437	20040618

PRIORITY APPLN. INFO: WO 2003-NL450 20030619
INT. PATENT CLASSIF.:
MAIN: A61K039-39
SECONDARY: A61K009-133; A61K039-002; A61K039-02; A61K039-12; A61K039-135; A61P031-00

BASIC ABSTRACT:
WO2004110486 A UPAB: 20050128
NOVELTY - A reconstituted viral membrane, the lipid bilayer of which comprises a fusion protein of a virus, an amphiphilic adjuvant and, optionally, a further antigen, is new.
DETAILED DESCRIPTION - A reconstituted viral membrane, the lipid bilayer of which comprises a fusion protein of a virus, an amphiphilic adjuvant and, optionally, a further antigen, where:
(a) the lipid bilayer has a lipid composition that is compatible with fusion, induced by the fusion protein, of the viral membrane with the membrane of a cell that can be fused with the virus from which the fusion protein is derived;

(b) the fusion protein and the amphiphilic adjuvant interact with the hydrophobic interior of the lipid bilayer; and

(c) the fusion protein, the amphiphilic adjuvant and the optional further antigen are not **covalently** linked.

INDEPENDENT CLAIMS are also included for:

(1) producing a reconstituted viral membrane; and

(2) a pharmaceutical composition comprising a reconstituted viral membrane as described above and a pharmaceutical carrier.

ACTIVITY - Immunostimulant; Antimicrobial.

Twenty-five micro l of influenza antigen (5 micro g of protein) was injected in the muscle of on hind leg of Balb/c mice on day 0. Blood samples were taken on days 0 and 14. Samples were analyzed by IgG ELISA against influenza hemagglutinin. Results showed an increased level of IgG on day 14 after injecting the reconstituted viral membranes compared to those injected with virosomes.

MECHANISM OF ACTION - Vaccine.

USE - The reconstituted viral membrane, composition, vaccine, and methods are useful for stimulating immune responses against pathogens and for treating or preventing diseases caused by pathogens.

Dwg.0/10

FILE SEGMENT: CPI
FIELD AVAILABILITY: AB; DCN
MANUAL CODES: CPI: B04-B01B; B04-B04C1; B04-B04C8; B04-C01A; B04-C01B; B04-C01H; B04-C02V; B04-L05B; B04-N03; B04-N05; B04-N06; B05-B01M; B10-B02D; B10-B02H; B14-S11A; B14-S11B; D05-H07

L146 ANSWER 47 OF 57 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN
ACCESSION NUMBER: 2004-098919 [10] WPIDS
DOC. NO. CPI: C2004-040788
TITLE: Composition for treating e.g. immune disorder comprises water-insoluble drug, **amphiphilic peptide**, protein or polynucleotide incorporated in sterically-stabilized simple or mixed micelle or sterically-stabilized crystal.
DERWENT CLASS: A96 B04 B07 D16
INVENTOR(S): ONYUKSEL, H; RUBINSTEIN, I
PATENT ASSIGNEE(S): (UNII) UNIV ILLINOIS FOUND
COUNTRY COUNT: 103
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2003105765	A2	20031224	(200410)*	EN	74	A61K000-00
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW						
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW						
AU 2003253645	A1	20031231	(200451)			A61K000-00

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003105765	A2	WO 2003-US18686	20030612
AU 2003253645	A1	AU 2003-253645	20030612

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2003253645	A1 Based on	WO 2003105765

PRIORITY APPLN. INFO: US 2002-387982P 20020612
INT. PATENT CLASSIF.:
MAIN: A61K000-00
BASIC ABSTRACT:
WO2003105765 A UPAB: 20040210
NOVELTY - A composition comprises a water-insoluble drug, **amphiphilic peptide** or protein or polynucleotide incorporated in a sterically-stabilized simple micelle (SSSM), sterically-stabilized mixed micelle (SSMM) or sterically-stabilized crystal (SSC). (SSSM), (SSMM) and (SSC) are encapsulated in a sterically-stabilized liposome (SSL). (SSL) comprises at least one lipid component **covalently** modified to include a targeting agent.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for preparation of a composition involving either

(a) process (A):

(i) incorporating water-insoluble drug, **amphiphilic peptide** or protein or polynucleotide in SSSM, SSMM or SSC comprising a single type (preferably at least two types) of lipid, where the lipid (preferably a molar fraction of the lipid) is **covalently** modified to include a water-soluble polymer;

(ii) mixing an aqueous **solution** containing the SSSM, SSMM or SSC containing optionally water-insoluble drug or compound with a dried lipid film to permit the lipid film to form liposomes and encapsulate the SSSM, SSMM or SSC. The lipid film comprises a mixture of at least two types of lipids where one type of lipid in the film is **covalently** modified to include a water-soluble polymer and resulting liposomes are SSL; and optionally

(iii) incubating the SSL with a lipid **covalently** modified to include a targeting agent under conditions to permit the lipid **covalently** modified to the targeting agent to incorporate into the liposome bilayer; or

(b) process (B):

(i) mixing a water-insoluble drug, **amphiphilic peptide**, protein or polynucleotide and a lipid (preferably at least two lipids) to permit optionally water-insoluble or water-soluble drug or compound and lipid association to form micelles, where the lipid (preferably a molar fraction of the lipid) is **covalently** modified to include a water soluble polymer and resulting micelles are SSSM, SSMM or SSC; and

(ii) mixing an aqueous **solution** containing SSSM, SSMM or SSC containing the water-insoluble drug, **amphiphilic peptide** or protein or polynucleotide with a dried lipid film to permit the lipid film to form liposomes and encapsulate the SSSM, SSMM or SSC, the lipid film comprising a mixture of at least two types of lipids where one type of lipid in the film is **covalently** modified to include a water soluble polymer and resulting liposomes are SSL.

ACTIVITY - Immunomodulator; Antiinflammatory; Cytostatic; Immunosuppressive; Thyromimetic; Antianemic; Anabolic; Hypertensive; Antidiabetic; Dermatological; Neuroprotective; Muscular-Gen.; Ophthalmological; Antithyroid; Osteopathic; Gastrointestinal-Gen.; Antiarthritic; Antirheumatic; Antiasthmatic; Antiallergic; Vasotropic; Nootropic; Uropathic; Antiparkinsonian; Cerebroprotective; Hypnotic; Anorectic; Analgesic; Antiulcer; CNS-Gen.; Respiratory-Gen.; Vulnerary; Antiarteriosclerotic; Antibacterial; Hemostatic; Anti-HIV; Antidepressant;

Tranquilizer; Antiseborrheic; Nephrotropic.

Paclitaxel (1 mg/ml) was dissolved in sterically-stabilized mixed micelle (SSMM) to give paclitaxel sterically-stabilized mixed micelle (P-SSMM). Rats with N-methyl nitrosourea (MNU)-induced breast cancer was administered with P-SSMM (5 mg/kg) and observed for 30 days. Results showed 91% reduction in tumor size as compared to Taxol (RTM) (comparative) which showed 48% reduction.

MECHANISM OF ACTION - Cell proliferation modulator; Apoptosis inhibitor; Cancer cell growth inhibitor.

USE - In the treatment of immune disorder, inflammatory conditions, cancer, Hashimoto's thyroiditis, pernicious anemia, Addison's disease, diabetes, systemic lupus erythematosus, dermatomyositis, Sjogren's syndrome, multiple sclerosis, myasthenia gravis, Reiter's syndrome, Graves disease, inflammatory bowel disease, osteoarthritis, rheumatoid arthritis, asthma, allergies, inflammatory neuropathies, vasculitis, polymyalgia rheumatica, temporal arteritis, Behcet's disease, Churg-Strauss syndrome, Takayasu's arteritis, autism, amyotrophic lateral sclerosis, multiple sclerosis, enuresis, Parkinson's disease, brain ischemia, stroke, cerebral palsy, sleep disorder, feeding disorder, obesity, hypoventilation, Alzheimer's disease, dementia, demyelinating disorder, neuropathy, carpal tunnel syndrome, AIDS-associated dementia and impotence, and female arousal sexual dysfunction, baldness, chronic constipation, Hirschprung's disease, achalasia, infantile hypertrophic pyloric stenosis, ulcer, cystic fibrosis, Kartageners syndrome, vasoconstriction, rhinitis, wound healing, atherosclerosis and vascular obstruction to an organ or tissue, gouty arthritis, spondylitis, sepsis, septic shock, hemorrhage, anergic conjunctivitis, uveitis, thyroid-associated, eosinophilic granuloma, pulmonary or respiratory disorders such as chronic bronchitis, chronic obstructive pulmonary disease, silicosis, pulmonary sarcoidosis, pleurisy, alveolitis, vasculitis, pneumonia, bronchiectasis, and pulmonary oxygen toxicity, reperfusion injury of the myocardium, brain, or extremities, keloid formation or scar tissue formation, food allergies, urticaria, angioedema, eczema, Stevens Johnson syndrome, atopic keratoconjunctivitis, myasthenia gravis, graft versus host disease, cerebrovascular ischemia, erectile dysfunction, motor neuron disease, depression, anxiety disorders, memory impairments, bullous pemphigoid, acne, rosacea, nephritis, ulcerative colitis, muscle disease, Reynaud's phenomenon, Bierger's disease, renal failure, neuritis, arthropathy, pre-eclampsia, burns and Kaposi's sarcoma.

ADVANTAGE - The micelles are safe, biocompatible and non-toxic and are explored to solubilize water-insoluble drugs and **amphiphilic peptides** and proteins. The sterically stabilized micelles prevent opsonization and reticular endothelial system uptake. The micellar systems are relatively stable on dilution due to low critical micellar concentration values in contrast to conventional detergent micelles. The composition delivers and enhances bioactivity which provides improvements in the efficacy and duration of the biological effects; and overcomes problems associated with previous liposomal formulations such as retiuloendothelial system, degradation of the compound or delivery of the compound in an inactive conformation. The paclitaxel in simple and mixed micelles is readily available to interact with cancer cells and retain its anti-mitotic potency.

Dwg.0/0

FILE SEGMENT: CPI
FIELD AVAILABILITY: AB; DCN
MANUAL CODES: CPI: A12-V01; B04-C03; B04-D01; B04-E01; B04-N04; B05-B01P; B06-A03; B12-M11F; B12-M11H; B14-C03; B14-C09; B14-D01; B14-E10; B14-E11; B14-E12; B14-F01; B14-F03; B14-G01; B14-G02; B14-H01B; B14-J01; B14-K01A; B14-N11; B14-N17; B14-S01;

D05-H10

L146 ANSWER 48 OF 57 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN
ACCESSION NUMBER: 2001-602251 [68] WPIDS
DOC. NO. CPI: C2001-178322
TITLE: Non-naturally occurring gene therapy vector useful for gene therapy, comprises an inner shell having a core complex containing a nucleic acid and at least one complex forming reagent.
DERWENT CLASS: A96 B04 B05 D16
INVENTOR(S): CHENG, C; FREI, J; METT, H; PUTHUPPARAMPIL, S; STANEK, J; SUBRAMANIAN, K; TITMAS, R; WOODLE, M; YANG, J; SCARIA, P; WOODLE, M C
PATENT ASSIGNEE(S): (NOVS) NOVARTIS AG; (NOVS) NOVARTIS-ERFINDUNGEN VERW GES MBH; (CHEN-I) CHENG C; (FREI-I) FREI J; (METT-I) METT H; (SCAR-I) SCARIA P; (STAN-I) STANEK J; (SUBR-I) SUBRAMANIAN K; (TITM-I) TITMAS R; (WOOD-I) WOODLE M C; (YANG-I) YANG J
COUNTRY COUNT: 95
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2001049324	A2	20010712	(200168)*	EN	178	A61K048-00
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW						
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW						
AU 2001033669	A	20010716	(200169)			
EP 1242609	A2	20020925	(200271)	EN		C12N015-88
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR						
JP 2003519199	W	20030617	(200349)		210	A61K048-00
US 2003166601	A1	20030904	(200359)			A61K048-00
CN 1433478	A	20030730	(200365)			C12N015-88
AU 2004231170	A1	20041223	(200510)#			A61K048-00

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2001049324	A2	WO 2000-EP13300	20001228
AU 2001033669	A	AU 2001-33669	20001228
EP 1242609	A2	EP 2000-991644	20001228
		WO 2000-EP13300	20001228
JP 2003519199	W	WO 2000-EP13300	20001228
		JP 2001-549690	20001228
US 2003166601	A1 Cont of	US 1999-475305	19991230
		US 2002-290406	20021106
CN 1433478	A	CN 2000-818748	20001228
AU 2004231170	A1 Div ex	AU 2001-33669	20001228
		AU 2004-231170	20041117

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2001033669	A Based on	WO 2001049324

EP 1242609 A2 Based on WO 2001049324
JP 2003519199 W Based on WO 2001049324

PRIORITY APPLN. INFO: US 1999-475305 19991230; US
2002-290406 20021106; AU
2004-231170 20041117
INT. PATENT CLASSIF.:
MAIN: A61K048-00; C12N015-88
SECONDARY: A61K009-127; A61K031-519; A61K031-7088; A61K038-00;
A61K038-27; A61K039-395; A61K047-14; A61K047-18;
A61K047-22; A61K047-24; A61K047-28; A61K047-30;
A61K047-34; A61K047-42; A61K047-44; A61K047-46;
A61P043-00; C07C211-14; C07C215-14; C12N015-00
ADDITIONAL: C12N015-09
BASIC ABSTRACT:
WO 200149324 A UPAB: 20011121
NOVELTY - A non-naturally occurring gene therapy vector, comprising an inner shell having a core complex (1) containing a nucleic acid and at least one complex forming reagent (2), is new.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:
(1) forming a self assembling core complex by feeding a stream of a **solution** of a nucleic acid and a core complex-forming moiety into a static mixer, the streams are split into inner and outer helical streams that intersect at several different points causing turbulence and promoting mixing, that results in a physicochemical assembly interaction; and
(2) a compound having formula (I).
m = 3 or 4;
Y = -(CH2)n-, or -CH2-CH=CH-CH2- if R2 is -(CH2)3-NR4R5 and m is 3;
n = 3-16;
R2 = H, or lower alkyl, or -(CH2)3-NR4R5 is m is 3;
R3 = H, or alkyl, or -CH2-CH(-X')-OH if R2 is -(CH2)3-NR4R5 and m is 3;
X and X' = independently, H or alkyl; and
R, R1, R4 and R5 = independently, H or lower alkyl, where R, R1, R4 and R5 are not all H or methyl, if m is 3 and Y is -(CH2)3.
ACTIVITY - None given.
MECHANISM OF ACTION - Gene therapy.
No biological data is given.
USE - In gene therapy for nucleic acid delivery.
ADVANTAGE - The vectors are stable having an improved outer steric layer that provides enhanced target specificity, in vivo and colloidal stability. The vectors are relatively homogenous and comprises chemically defined species. The vectors demonstrate improved cell entry and intracellular trafficking, permitting enhanced nucleic acid therapeutic activity such as gene expression.
Dwg.0/30
FILE SEGMENT: CPI
FIELD AVAILABILITY: AB; GI; DCN
MANUAL CODES: CPI: A12-V01; B04-B01B; B04-E01; B04-G01; B04-H01; B04-H06; B04-H19; B04-H20; B04-J01; B04-N01; B05-B01P; B10-B01B; B12-M11E; B12-M11F; B14-S03; D05-H10; D05-H12E

L146 ANSWER 49 OF 57 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN
ACCESSION NUMBER: 2002-016868 [02] WPIDS
CROSS REFERENCE: 2004-200894 [19]
DOC. NO. CPI: C2002-004636
TITLE: New amphiphilic molecules useful in liposomes for forming

formulations in a variety of applications e.g. drug delivery and nutrition.

DERWENT CLASS: A96 B07
INVENTOR(S): ANEJA, R
PATENT ASSIGNEE(S): (NUTR-N) NUTRIMED BIOTECH
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 6284267	B1	20010904	(200202)*		34	A61K009-127

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 6284267	B1 Provisional	US 1996-24382P	19960814
		US 1997-912978	19970813

PRIORITY APPLN. INFO: US 1996-24382P 19960814; US 1997-912978 19970813
INT. PATENT CLASSIF.:
MAIN: A61K009-127
BASIC ABSTRACT:
US 6284267 B UPAB: 20040318
NOVELTY - An amphiphilic molecule comprises a hydrophilic component having at least a first and a second terminus and at lest a first and second hydrophobic moiety separately attached to or proximal to the first and second terminus of the hydrophilic component is new. The amphiphilic molecule comprises a hydrophilic component having **covalently** attached at least two hydrophobic moieties at spatially distant sites.

DETAILED DESCRIPTION - INDEPDENDENT CLAIMS are included for the following:

(1) a population of the amphiphilic molecule; and

(2) preparing the amphiphilic molecule involving separately attaching at least the first and second hydrophobic moieties to ot proximal to, the first and second terminus of the hydrophilic component.

USE - Into a micelle, monolayer, bilayer, multimolecular aggregate, lipid microemulsion, oil globule, fat globule, wax globule or liposome (claimed) as processing aids e.g. emulsifier, and as functional ingredient, which are useful in agriculture, antigen-presentation for diagnostics, drug delivery, food, nutrition, personal-care and hygiene products, cosmetics, blood products and industrial applications. To create immunogenic red blood cells (claimed) for blood substitutes and analogous biomaterials. In other veterinary, medicinal and other biomedical composition.

ADVANTAGE - The amphiphilic molecules in contact with water, displays surface activity and self-assembles into multimolecular aggregates and liquid crystalline phases. The liposomes formed from it exhibit increased half-life such that the liposomes exhibit half-life of about one day and five or ten days upon incubation in a buffered **solution** or in a serum sample in vitro. Thus it enhances the stability and blood circulation half-life of liposomes. It provides important barrier functions to the liposomes, complexes or cells that are associated with it.

Dwg.0/10
FILE SEGMENT: CPI
FIELD AVAILABILITY: AB; DCN
MANUAL CODES: CPI: A10-E01; A12-V; B01-D02; B04-B01B; B04-B04C;

B04-B04D2; B04-C01; B04-C03; B04-E01; B04-E06;
B04-E07; B04-E08; B04-G01; B04-H06; B04-J01;
B04-L01; B05-B01P; B12-M11F

L146 ANSWER 50 OF 57 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN
ACCESSION NUMBER: 1992-150813 [18] WPIDS
DOC. NO. CPI: C1992-069841
TITLE: Stabilised, isolated metallo polypeptide - comprises polyvalent metal ion coordinately linked to polypeptide binding ligand bonded to linear **amphiphilic peptide.**
DERWENT CLASS: B04 D16
INVENTOR(S): GHADIRI, M R; GHADIRI, M; GHADIRI, R M
PATENT ASSIGNEE(S): (SCRI) SCRIPPS RES INST; (SCRI-N) SCRIPPS RES INS
COUNTRY COUNT: 20
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 9206110	A	19920416	(199218)*	EN	148	
RW: AT BE CH DE DK ES FR GB GR IT LU NL SE						
W: AU CA FI JP NO						
AU 9188719	A	19920428	(199232)			C07K007-08
US 5200504	A	19930406	(199316)		927	A61K037-02
EP 552284	A1	19930728	(199330)	EN	148	C07K007-08
R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE						
JP 06502409	W	19940317	(199416)		30	C07K007-00
US 5408036	A	19950418	(199521)		44	A61K037-02
US 5410020	A	19950425	(199522)		27	A61K037-02
AU 658840	B	19950504	(199526)			C07K017-14
EP 552284	B1	20000329	(200020)	EN		C07K007-08
R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE						
EP 992513	A2	20000412	(200023)	EN		C07K007-08
R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE						
CA 2093214	C	20000208	(200027)	EN		C12N009-00
DE 69132084	E	20000504	(200029)			C07K007-08
ES 2143979	T3	20000601	(200033)			C07K007-08
EP 992513	B1	20021218	(200301)	EN		C07K007-08
R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE						
DE 69133186	E	20030130	(200317)			C07K007-08
ES 2189346	T3	20030701	(200347)			C07K007-08

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
WO 9206110	A		WO 1991-US7248	19911001
AU 9188719	A		AU 1991-88719	19911001
			WO 1991-US7248	19911001
US 5200504	A		US 1990-591988	19901002
EP 552284	A1		EP 1991-919635	19911001
			WO 1991-US7248	19911001
JP 06502409	W		JP 1991-518275	19911001
			WO 1991-US7248	19911001
US 5408036	A	CIP of	US 1990-591988	19901002
		Cont of	US 1991-769621	19910923
			US 1993-164618	19931209
US 5410020	A	Div ex	US 1990-591988	19901002
			US 1993-6037	19930119
AU 658840	B		AU 1991-88719	19911001

EP 552284	B1		EP 1991-919635	19911001
			WO 1991-US7248	19911001
		Related to	EP 1999-203078	19911001
EP 992513	A2	Div ex	EP 1991-919635	19911001
			EP 1999-203078	19911001
CA 2093214	C		CA 1991-2093214	19911001
			WO 1991-US7248	19911001
DE 69132084	E		DE 1991-632084	19911001
			EP 1991-919635	19911001
			WO 1991-US7248	19911001
ES 2143979	T3		EP 1991-919635	19911001
EP 992513	B1	Div ex	EP 1991-919635	19911001
			EP 1999-203078	19911001
DE 69133186	E		DE 1991-633186	19911001
			EP 1999-203078	19911001
ES 2189346	T3		EP 1999-203078	19911001

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9188719	A	Based on	WO 9206110
EP 552284	A1	Based on	WO 9206110
JP 06502409	W	Based on	WO 9206110
US 5408036	A	CIP of	US 5200504
US 5410020	A	Div ex	US 5200504
AU 658840	B	Previous Publ.	AU 9188719
		Based on	WO 9206110
EP 552284	B1	Based on	WO 9206110
EP 992513	A2	Div ex	EP 552284
CA 2093214	C	Based on	WO 9206110
DE 69132084	E	Based on	EP 552284
		Based on	WO 9206110
ES 2143979	T3	Based on	EP 552284
EP 992513	B1	Div ex	EP 552284
DE 69133186	E	Based on	EP 992513
ES 2189346	T3	Based on	EP 992513

PRIORITY APPLN. INFO: US 1991-769621 19910930; US
1990-591988 19901002; US
1993-164618 19931209; US
1993-6037 19930119
REFERENCE PATENTS: 2.Jnl.Ref; US 4849505
INT. PATENT CLASSIF.:
MAIN: A61K037-02; C07K007-00; C07K007-08; C07K017-14; C12N009-00
SECONDARY: A61K037-26; C07K005-00; C07K007-42; C07K017-00
INDEX: C07K099:00
BASIC ABSTRACT:

WO 9206110 A UPAB: 19940510
A metallopeptide (I) comprises a peptide bonded to a metal **cation** at 2 coordinating amino acid residues (AA) which are aqueous solvent accessible. The secondary structure of (I) is stabilised by the **cation.**

Also claimed is an isolated metallopolypeptide (II) comprising a polyvalent metal **cation** coordinately linked to 2-8 polypeptide binding ligands where at least 2 of the ligands are **covalently** bonded to a linear **amphiphilic peptide** (LAP).

USE/ADVANTAGE - The secondary structure of the peptide is stabilised by at least 10%, especially at least 5mi

Dwg.0/7
FILE SEGMENT: CPI
FIELD AVAILABILITY: AB
MANUAL CODES: CPI: B04-C01C; B04-C01D; B05-A01B; B05-A03; B05-A04; D05-A01A5

L146 ANSWER 51 OF 57 DISSABS COPYRIGHT (C) 2005 ProQuest Information and Learning Company; All Rights Reserved on STN
ACCESSION NUMBER: 2002:31927 DISSABS Order Number: AAI3034455
TITLE: Form versus function: The study of how ligand conformation modulates cellular function in multicomponent systems using supported bilayers of **peptide amphiphiles**
AUTHOR: Ochsenhirt, Sarah Elizabeth [Ph.D.]; Tirrell, Matthew [adviser]
CORPORATE SOURCE: University of Minnesota (0130)
SOURCE: Dissertation Abstracts International, (2002) Vol. 62, No. 11B, p. 5228. Order No.: AAI3034455. 164 pages.
ISBN: 0-493-47071-9.
DOCUMENT TYPE: Dissertation
FILE SEGMENT: DAI
LANGUAGE: English
ABSTRACT:

The overriding theme of this project was to understand how the microenvironment of a cell impacts cell adhesion and subsequent signaling events. The relationship between ligand form and cell receptor function was characterized using a model system of Langmuir-Blodgett (LB) supported films, in which isolated variables were selectively altered. First, the conformation of an adhesive Arginine-Glycine-Aspartic acid (RGD) **peptide** was systematically modified by synthesizing **peptide amphiphiles** and subsequently measuring their impact on the function of human umbilical vein endothelial cells (HUVEC). Secondly, the contribution of non-contiguous ligands to cellular engagement was assessed using multi-component biomimetic films.

The **peptide amphiphiles** were composed of fibronectin-derived headgroups--either RGD or one its synergy sites, Pro-His-Ser-Arg-Asn (PHSRN)--attached to **hydrocarbon tails.** The number of **hydrocarbon tails** controlled the presentation/conformation of the RGD **peptide.** Following deposition of a **peptide amphiphile** monolayer from the air-water interface onto a solid substrate using the LB technique, the RGD **peptide** was selectively presented at the interface as either a linear **peptide** or in a looped motif. The **peptide amphiphiles** were diluted using polyethylene glycol (PEG) **amphiphiles,** where PEG inhibited nonspecific cell adhesion. The two (RGD/PEG) and three (RGD/PHSRN/PEG) component systems were plated with endothelial cells to assess their bioactivity.

Cells adhered and spread on RGD/PEG systems in a dose-dependent manner, without a measurable contribution from the presentation of the RGD ligand; however, presentation influenced integrin cell surface receptor (α xβy) specificity. β1-containing integrins mediated adhesion to the linear RGD presentation to a greater extent than did the $\alpha v\beta 3$ integrin; however, the α vβ3 integrin mediated adhesion to looped RGD to a significantly greater degree than did

β1-containing integrins. While modulation of preferential integrin engagement was unsuccessful in three component systems, RGD/PHSRN/PEG systems enhanced cell spreading over their two component analogues. Comprehensively, these results demonstrated that controlling the microenvironment of the cell was essential for biomimetics to modulate specific binding and subsequent signaling events.

CLASSIFICATION: 0541 **ENGINEERING, BIOMEDICAL**

L146 ANSWER 52 OF 57 DISSABS COPYRIGHT (C) 2005 ProQuest Information and Learning Company; All Rights Reserved on STN

ACCESSION NUMBER: 2003:26448 DISSABS. Order Number: AAI3064782

TITLE: Synthesis and studies of **polypeptide** materials: Self-assembled block copolypeptide **amphiphiles**, DNA-condensing block copolypeptides and membrane-interactive random copolypeptides

AUTHOR: Wyrsta, Michael Dmytro [Ph.D.]; Deming, Timothy J. [adviser]

CORPORATE SOURCE: University of California, Santa Barbara (0035)

SOURCE: Dissertation Abstracts International, (2002) Vol. 63, No. 9B, p. 4198. Order No.: AAI3064782. 125 pages. ISBN: 0-493-83913-5.

DOCUMENT TYPE: Dissertation

FILE SEGMENT: DAI

LANGUAGE: English

ABSTRACT:

A new class of transition metal initiators for the controlled polymerization of α-aminoacid-N-carboxyanhydrides (α-NCAs), has been developed by Deming et al. This discovery has allowed for the synthesis of well-defined "protein-like" polymers. Using this chemistry we have made distinct block/random copolypeptides for biomedical applications. Drug delivery, gene delivery, and antimicrobial polymers were the focus of our research efforts.

The motivation for the synthesis and study of synthetic polypeptide based materials comes from proteins. Natural proteins are able to adopt a staggeringly large amount of uniquely well-defined folded structures. These structures account for the diversity in properties of proteins. As catalysts (enzymes) natural proteins perform some of the most difficult chemistry with ease and precision at ambient pressures and temperatures. They also exhibit incredible structural properties that directly result from formation of complex hierarchical assemblies.

Self-assembling block copolymers were synthesized with various compositions and architectures. In general, di- and tri-block amphiphiles were studied for their self-assembling properties. Both spherical and tubular vesicles were found to assemble from di- and tri-block amphiphiles, respectively. In addition to self-assembly, pH responsiveness was engineered into these amphiphiles by the incorporation of basic residues (lysine) into the hydrophobic block.

Another form of self-assembly studied was the condensation of DNA using **cationic** block copolymers. It was found that **cationic** block copolymers could condense DNA into compact, ordered, water-soluble aggregates on the nanoscale. These aggregates sufficiently protected DNA from nucleases and yet were

susceptible to proteases. These studies form the basis of a gene delivery platform.

The ease with which NCAs are polymerized renders them completely amenable to parallel synthetic methods. We have employed this technique to discover new antimicrobial polypeptides. The polymers studied were themselves the antimicrobial agent, not a self-assembled aggregate that contained antibiotics. It was found that powerful antibacterial polymers could be readily prepared with simple binary compositions. Antibacterial activity was sensitive to copolymer composition, bacterial cell-wall type, and insensitive to chain length (within reason).

CLASSIFICATION: 0495 CHEMISTRY, POLYMER; 0786 BIOPHYSICS, GENERAL; 0794 ENGINEERING, MATERIALS SCIENCE; 0541 **ENGINEERING, BIOMEDICAL**

L146 ANSWER 53 OF 57 DISSABS COPYRIGHT (C) 2005 ProQuest Information and Learning Company; All Rights Reserved on STN

ACCESSION NUMBER: 2003:25568 DISSABS Order Number: AAI3065070

TITLE: Fundamental and applied studies of SCK nanoparticle surface interactions

AUTHOR: Ma, Qinggao [Ph.D.]; Wooley, Karen L. [adviser]

CORPORATE SOURCE: Washington University (0252)

SOURCE: Dissertation Abstracts International, (2002) Vol. 63, No. 9B, p. 4195. Order No.: AAI3065070. 277 pages. ISBN: 0-493-84271-3.

DOCUMENT TYPE: Dissertation

FILE SEGMENT: DAI

LANGUAGE: English

ABSTRACT:

Shell crosslinked (SCK) nanostructures with different shell chemistries and properties were prepared and their interactions with different substrates, salts, DNA plasmids, proteins, and **peptides** were studied. SCKs with different morphologies and stimulus-induced morphology transformation processes were also explored.

The SCK synthesis began with the preparation of well-defined block copolymer precursors, using controlled radical polymerization, including atom transfer radical polymerization (ATRP) and nitroxide mediated radical polymerization (NMRP), and their transformation into **amphiphilic** block copolymers. The **amphiphilic** block copolymers were then self-assembled to form micelles in aqueous solution followed by **covalent** shell crosslinking to form SCKs.

The SCK surface chemistry was tuned by controlling the extent of shell crosslinking. The remaining active sites on the SCKs were used for further functionalizations and interactions. In particular, the two-dimensional colloidal crystallization of the SCKs was studied in detail, in which the SCK shell crosslinking chemistry offered unprecedented control over the crystallization process and crystalline structures.

Crosslinking reactions facilitated the kinetic trapping of the supramolecular assemblies formed from triblock copolymers in THF/water solution. Addition of a small molecule reagent perturbed the assembly, and the intermediate nanostructures resulting from supramolecular reorganization were isolated and identified. The strategy involving the intentional perturbation of supramolecular

assemblies and trapping at intermediate stages may serve as a general methodology for investigation of other systems. Moreover, this methodology allows for access to novel nanostructured materials, including those that are not available as thermodynamically stable morphologies.

These robust nanostructures with different surface functionalities, core-shell morphologies, shapes and sizes are promising for biomedical applications and nanotechnologies. Several advances were made toward the investigation of the utility of SCKs. Congo red conjugated SCK nanoparticles are expected to be useful for Alzheimer's disease diagnosis and treatment. Positively-**charged** SCKs were studied as non-viral gene delivery vectors. Biocompatible SCKs, composed of poly(acrylic acid)-co-poly(acrylamide) shell and a variety of core materials were prepared for development as drug delivery vehicles. Studies of the co-crystallization of SCKs with inorganic salts may lead to novel nanomaterials, including photonic band-gap materials.

CLASSIFICATION: 0495 CHEMISTRY, POLYMER; 0490 CHEMISTRY, ORGANIC; 0572 HEALTH SCIENCES, PHARMACY; 0541 **ENGINEERING, BIOMEDICAL**

L146 ANSWER 54 OF 57 DISSABS COPYRIGHT (C) 2005 ProQuest Information and Learning Company; All Rights Reserved on STN

ACCESSION NUMBER: 1999:27980 DISSABS Order Number: AAR9913364

TITLE: CELLULAR RECOGNITION OF SYNTHETIC **PEPTIDE AMPHIPHILES** IN SUPPORTED BIOARTIFICIAL MEMBRANES

AUTHOR: PAKALNS, TEIKA [PH.D.]; TIRRELL, MATTHEW [adviser]

CORPORATE SOURCE: UNIVERSITY OF MINNESOTA (0130)

SOURCE: Dissertation Abstracts International, (1998) Vol. 59, No. 12B, p. 6449. Order No.: AAR9913364. 228 pages.

DOCUMENT TYPE: Dissertation

FILE SEGMENT: DAI

LANGUAGE: English

ABSTRACT:

The goal of this study was to demonstrate that lipidated cell adhesion peptides could form well-ordered biomimetic surfaces that were capable of influencing cellular behavior in a controlled and specific manner. The first step taken was to **covalently** link synthetic dialkyl tails to the amino-termini of the collagen-derived peptide IV-H1 (amino acid sequence GVKGDKGNPGWPGAP) and the well-known tripeptide Arg-Gly-Asp (RGD) to produce amino-coupled **peptide amphiphiles.** Other spatial orientations of RGD were also generated by coupling tails to the carboxyl-terminus to give carboxyl-coupled RGD amphiphiles and to both the amino- and carboxyl-termini to give looped RGD amphiphiles.

The next step taken was to let the **peptide amphiphile** self-assemble along with methyl ester-capped dialkyl tails into mixed films. It was found that all the **peptide amphiphiles** formed stable monolayers at the air-water interface in a Langmuir trough. IV-H1 amphiphiles and carboxyl-coupled and looped RGD amphiphiles deposited well as Langmuir-Blodgett mixed films on solid surfaces at all **peptide** concentrations, but aminocoupled RGD **amphiphiles** did not deposit well at high RGD concentrations. FT-IR studies of films containing RGD amphiphiles showed that amino-coupled RGD head groups formed the strongest lateral

hydrogen bonds.

The final step was to study cellular response to mixed films containing IV-H1 or RGD amphiphiles. The spreading of melanoma cells was influenced by both the molar concentration and spatial orientation of the **amphiphilic peptides.** Cells spread on IV-H1 and looped RGD films in a concentration-dependent manner, but spread indiscriminately on carboxyl-coupled RGD films and did not spread at all on well-deposited amino-coupled RGD films. The specificity of the cellular response to looped RGD amphiphiles was investigated. Control films of looped Arg-Gly-Glu (RGE) amphiphiles inhibited the adhesion and spreading of melanoma and endothelial cells, and antibody inhibition of the integrin receptor subunits α3 and β1 blocked melanoma cell adhesion to looped RGD amphiphiles. These results confirm that novel biomolecular materials containing synthetic **peptide amphiphiles** have the potential to control cellular behavior in a specific manner.

CLASSIFICATION: 0794 ENGINEERING, MATERIALS SCIENCE; 0541 **ENGINEERING, BIOMEDICAL**; 0379 BIOLOGY, CELL

L146 ANSWER 55 OF 57 DISSABS COPYRIGHT (C) 2005 ProQuest Information and Learning Company; All Rights Reserved on STN

ACCESSION NUMBER: 1998:19210 DISSABS Order Number: AAR9815091

TITLE: SYNTHESIS AND CHARACTERIZATION OF COLLAGENOUS **PEPTIDE-AMPHIPHILES**

AUTHOR: YU, YING-CHING [PH.D.]; FIELDS, GREGG B. [adviser]; TIRRELL, MATTHEW [adviser]

CORPORATE SOURCE: UNIVERSITY OF MINNESOTA (0130)

SOURCE: Dissertation Abstracts International, (1997) Vol. 58, No. 11B, p. 6085. Order No.: AAR9815091. 131 pages.

DOCUMENT TYPE: Dissertation

FILE SEGMENT: DAI

LANGUAGE: English

ABSTRACT:

A novel peptide modification method, in which lipid tails were **covalently** coupled to **peptides** to form **peptide-amphiphiles**, has been developed. The **peptide** was synthesized on resin by Fmoc solid-phase methodology. Monoalkyl and dialkyl lipid tails were coupled to the N-terminus of side-chain protected peptides on the resin and then the product was cleaved. The crude product was purified by RP-HPLC using a C-4 column. The **peptide-amphiphile** integrity was verified by MALDI-MS.

Collagens are unique in their triple-helical structure; in many cases the triple-helical structure is essential for receptor recognition. The $\alpha1$(IV)1263-1277 collagen sequence Gly-Val-Lys-Gly-Asp-Lys-Gly-Asn-Pro-Gly-Trp-Pro-Gly-Ala-Pro (IV-H1), which is known to promote melanoma cell adhesion and spreading, has been assembled with monoalkyl and dialkyl lipid tails. Structural studies were performed by CD and NMR spectroscopies. The IV-H1 peptide did not form a triple-helix nor did **peptide-amphiphiles** containing only IV-H1. By adding (Gly-Pro-Hyp)$\sb4,$ (Gly-Pro-Hyp)$\sb4$- (IV-H1) -(Gly-Pro-Hyp)$\sb4$ formed a triple-helix of low thermal stability. All the investigated

peptide-amphiphiles containing (Gly-Pro-Hyp)$\sb4$- (IV-H1) -(Gly-Pro-Hyp)$\sb4$ formed stable triple-helices and displayed sigmoidal thermal transition curves. The melting temperature increased with the lengths of lipid tails. Although (Gly-Pro-Hyp)$\sb4$- (IV-H1) or (IV-H1) -(Gly-Pro-Hyp)$\sb4$ did not form triple-helix except at very low temperature, **peptide-amphiphiles** containing (Gly-Pro-Hyp)$\sb4$- (IV-H1) or (IV-H1) -(Gly-Pro-Hyp)$\sb4$ formed stable triple-helices, exhibiting melting curves with broad transitions.

$\sp{15}$N-labeled amino acid residues were used in combination with NMR spectroscopy to identify three distinct strands of a triple-helix and verify that the **peptide-amphiphile** formed a much more stable triple-helix than the peptide alone.

Dialkyl **peptide-amphiphiles** formed stable monolayers at the air-water interface and could be deposited on a solid surface. Melanoma cells were shown to spread on the **peptide-amphiphile** deposited surface. The biological activities of monoalkyl **peptide-amphiphiles**, as examined by melanoma cell adhesion, was substantially higher than the peptide alone.

Peptide-amphiphiles have proved to be effective in forming stable triple-helices. The capability of forming stable monolayers makes **peptide-amphiphiles** a useful tool for biological studies.

CLASSIFICATION: 0541 **ENGINEERING, BIOMEDICAL**; 0542 ENGINEERING, CHEMICAL

L146 ANSWER 56 OF 57 EMBASE COPYRIGHT (c) 2005 Elsevier B.V. All rights reserved on STN

ACCESSION NUMBER: 2001271082 EMBASE
TITLE: Peptide anchored Langmuir-Blodgett films of a fullerene amphiphile.
AUTHOR: Tundo P.; Perosa A.; Selva M.; Valli L.; Giannini C.
CORPORATE SOURCE: P. Tundo, Dipartimento di Scienze Ambientali, Universita Ca' Foscari, Dorsoduro 2137, 30123 Venezia, Italy. tundop@unive.it
SOURCE: Colloids and Surfaces A: Physicochemical and Engineering Aspects, (15 Oct 2001) Vol. 190, No. 3, pp. 295-303. Refs: 55
ISSN: 0927-7757 CODEN: CPEAEH
PUBLISHER IDENT.: S 0927-7757(01)00704-X
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English
ENTRY DATE: Entered STN: 20010816
Last Updated on STN: 20010816

ABSTRACT: A new amphiphilic derivative of fullerene C(60) bearing an oligoglycyl tail (C(60)CHCOgly(2)OEt, 2) formed stable Langmuir floating films at the air-water interface. This occurred when the molecular assembly was stabilized by anchoring the amphiphilic C(60)'s to the aqueous subphase, via hydrogen bonding interactions between a dipeptide (Gly-L-Leu) dissolved in the water subphase, and the oligoglycyl chain. The compression (π - A) isotherm of the Langmuir floating film constructed in such a way showed no hysteresis,

was steep, and evidenced that the monolayer collapsed at a surface pressure $\pi \geq 65$ mN m(-1), thus confirming that the film was tightly packed, extremely stable, and rigid. A limiting area per molecule of 89.1 A(2) was extrapolated, in agreement with the calculated cross-section area of the C(60) fullerene. On the contrary, when the dipeptide was absent and pure water was used as the subphase, the π - A isotherm yielded a limiting area < 55 A(2) which indicated the formation of multiple layers; moreover it showed significant hysteresis, the film was fragile, and it collapsed at $\pi \approx 50$ mN m(-1). Once anchored by the dipeptide, the floating monolayer of 2 could be transferred onto hydrophobic quartz, glass and silicon substrates, by successive vertical dipping cycles, each cycle made up of two down-strokes and two up-strokes, to yield the Langmuir-Blodgett film. Up to 200 down- and up-strokes could be repeated reproducibly, a noteworthy result for non-**covalently** assembled LB films of fullerenes. The transfer ratio was 1.0, except for the second down-stroke of each cycle that gave a transfer ratio of zero, making the sequence of successful transfers: D, U, U, (cleaning and spreading), D, U, U, (cleaning and spreading), and so on (D = down-stroke, U = up-stroke). The total number of deposited layers was therefore 150. X-ray diffraction spectra were registered and exhibited a peak, which was fitted by a Montecarlo method of simulation to obtain the distribution of the repeat unit responsible for scattering; such distribution, with thickness between 20 and 60 A, was consistent with the size of the amphiphile and the transfer sequence. The UV-Vis spectra of the LB film exhibited the characteristic C(60) bands, and the absorption peaks in the 200-400 nm range were proportional to the number of layers, indicating that the deposition was reproducible and that the molecular environment of C(60) in each layer remained constant.

CONTROLLED TERM: Medical Descriptors:
film
air
molecular stability
aqueous solution
hydrogen bond
compression
hysteresis
molecule
cleaning
X ray diffraction
spectrum
system analysis
simulation
ultraviolet radiation
light absorption
article
priority journal
Drug Descriptors:
***peptide**
*fullerene
***amphophile**
amphiphilic derivative
water
dipeptide
silicon dioxide
glass
silicon
glycylleucine
unclassified drug

CAS REGISTRY NO.: (water) 7732-18-5; (silicon dioxide) 10279-57-9,

14464-46-1, 14808-60-7, 15468-32-3, 60676-86-0, 7631-86-9; (silicon) 7440-21-3; (glycylleucine) 869-19-2

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ACCESSION NUMBER: 92075454 EMBASE
DOCUMENT NUMBER: 1992075454
TITLE: Membrane fusion induced by mutual interaction of the two **charge**-reversed amphiphilic peptides at neutral pH.
AUTHOR: Murata M.; Kagiwada S.; Takahashi S.; Ohnishi S.-I.
CORPORATE SOURCE: Department of Biophysics, Faculty of Science, Kyoto University,Sakyo-ku, Kyoto 606, Japan
SOURCE: Journal of Biological Chemistry, (1991) Vol. 266, No. 22, pp. 14353-14358.
ISSN: 0021-9258 CODEN: JBCHA3
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English
ENTRY DATE: Entered STN: 920417
Last Updated on STN: 920417

ABSTRACT: An anionic amphiphilic peptide and the **charge**-reversed cationic peptide are synthesized. They contain 20 amino acids with the same sequence except for 5 Glu residues for the anionic versus 5 Lys residues for the cationic peptides. Fusion of egg phosphatidylcholine large unilamellar vesicles is assayed with the fluorescent probes by the lipid mixing and the internal content mixing at neutral pH. The peptide mixture causes a rapid and efficient membrane fusion, in spite of no fusions with each peptide by itself. Each peptide takes nearly random coils with a small amount of helix, but the peptide mixture has an ordered helical structure. The equimolar peptide mixture forms a much more hydrophobic complex than those of different molar ratios of peptides and also that of each peptide itself. The equimolar peptide mixture causes the most efficient fusion. Preincubations of two peptides before addition to vesicles cause the slower rates of fusion. The fusion is greatly reduced at higher ionic strength and nearly zero at 800 mM NaCl and 40 mM sodium phosphate. Each peptide and the peptide mixture show the same α-helical structure, interact with vesicles, but do not induce fusion at higher ionic strengths. These results suggest that the two peptides interact mutually through the **electrostatic** Coulombic interaction between the ***charged*** groups. The electrically neutralized hydrophobic complex aggregates the separate vesicles together and interacts with the hydrocarbon region of lipid bilayers to cause fusion.

CONTROLLED TERM: Medical Descriptors:
*membrane fusion
*molecular interaction
article
ph
priority journal
Drug Descriptors:
***amphophile**
***peptide**

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